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HAS SUCCESSFUL SYNTHESIS ARRIVED?

IF during the last few years the plantation has been a bogy to the dwellers on the Amazon, synthetic rubber has lately played the same interesting role in relation to the Eastern planters.

The new synthetic rubber, styled "Pavea," has already been mentioned several times in these columns. Our English correspondent devotes an interesting paragraph to the subject in the letter which appears in this issue. We learn from him that the manufacturers of Great Britain are so impressed with the possibilities of Pavea that they are hesitating about the usual purchase of their crude supplies, preferring rather to hold off for a season to see how the new rubber materializes.

This new rubber, in some of the details given out regarding it, is certainly rather impressive—not so much perhaps by reason of the million dollar company that is promoting it or the very sizable plant secured for the purpose of its production, but rather because of the positive statements made by its vouchers that it will come on the market before the end of this year to the tune of 1,000 tons per week, that it will be sold at a 10 per cent. discount from the price of first latex, whatever that price may be, and that it can well afford to be marketed at this reduced figure as its cost is only 8 cents a pound.

If all of this should be true—if our English friends have discovered the way to produce a synthetic rubber at 8 cents a pound in weekly lots of 1,000 tons—the future certainly is dark for all those who derive their rubber from natural sources. In that event the Amazon might as well be dammed up for good and shut off from the world and the carefully cultivated plantations of the East might better revert to jungle land as speedily as possible. But perhaps after all Pará and Singapore would do well to maintain their dock facilities for yet a little while, for this new rubber has been rather more audible than visible, and even if some limited samples have been distributed to the trade, limited samples of other synthetic rubbers have also been produced in the past without any consequent disturbance of the rubber market. The composition of Pavea rubber is kept a profound secret, but it is no secret that the manufacture of any product in thousand-ton lots per week would call for a vast volume of material of some sort, and nothing has yet been discovered which could be converted—even in small quantities—into synthetic rubber at 8 cents per pound or any modest multiple of that figure. And then, as noticed in these columns last month, this new rubber has a very considerable constituent of resin, which gives rise to the conjecture that it is somewhat more akin to natural rubber than it is to the products of synthesis.

It is rather an interesting phenomenon that new synthetic rubbers generally make their appearance on the approach of the summer season. This, however, is fortunate, because at that time the more conservative departments of the industry are likely to be rather quiet, and these hot season oracles from the laboratory help greatly to maintain the mental activity of the trade at its proper level.

THE EXPORT BURDEN RUBBER HAS TO BEAR.

THE table published in the January issue of THE INDIA RUBBER WORLD showing the import duties on manufactured rubber goods, levied in the foreign countries which buy such merchandise from the United States in any considerable volume, attracted a great deal of attention, as it was the first time any attempt had been made to collect and tabulate this valuable information.

This issue contains a table showing the export duties levied on crude rubber by all the countries from which it has yet been shipped in commercial quantities. Some

of these export tariffs are very simple, some quite complex; some very light in their imposition and some extremely onerous. This table shows the great burden borne by the rubber of the Amazon country as compared with the favorable conditions under which plantation rubber is exported from the East. It shows, moreover, the tendency to favor plantation rubber in all the tropical colonies controlled by the different European countries, in many of which a tax is imposed upon the product of the wild tree while rubber from the planted tree goes out free from tax. This is particularly true of the British, German and Belgian possessions in Africa; while in the Protected Malay States wild rubber pays a duty of fifteen per cent. and plantation rubber of two and a half per cent.

Many interesting features will be found in this tabulation—some interesting because of their importance and some simply because of the inconsistencies they show. For instance, Mexico and British Honduras both place an export tax on chicle but ship rubber free from any impost, while their next door neighbor, Honduras, levies three times as much duty on rubber as on chicle. Then there are the Portuguese African colonies, where the duties at some ports are considerably more burdensome than they are from other ports and where rubber intended for Portugal escapes with a lower tax than rubber intended for any other country. In the Dutch East Indies, too, the export duty from one port is twice that exacted at a neighboring port.

This table is of more than passing interest to the exporters of rubber the world over, for it enables them to compare at a glance their condition with that of other exporters in the various countries where this important industry is carried on.

SHALL LABOR CONSTITUTE A PRIVILEGED CLASS?

NOTWITHSTANDING the sorry charge of conspiracy made by the Administration against those business men who have ventured to express opinions contrary to those entertained in Administration circles, it is to be hoped that our commercial and industrial leaders will still continue to declare their views, and particularly in relation to those anti-trust measures now being considered in Congress which have for their purpose an obvious discrimination in favor of labor. The Clayton Bill, for instance, which passed the House of Representatives on June 5, and is now before the Senate Committee on the Judiciary, in the opinion of leading legal authorities acts as a repeal of the Sherman law as far as it applies to labor and agricultural organizations; as it would prevent the courts from employing the usual processes of injunction to prevent picketing, boycotting and similar methods in labor strikes. This bill aims to give the members of labor organizations a certain immunity not enjoyed by other citizens. Would this be a wholesome condition? Would it not destroy the basic principle on which the foundation of this Government rests, namely, equal rights to all?

When Mr. Roosevelt was President he was visited by a labor delegation. Being cordially received, one of the delegates remarked, significantly, "We are very glad, Mr. President, to see that the door of the White House is open to the laboring man." To which Mr. Roosevelt instantly responded, "Yes, just as it is to the capitalist." This is the true attitude. Both Labor and Capital, both the man who works with his hands and the man who works with his head, should have precisely the same standing before the law. And it is not only the right but it is the duty of business men to protest against any discrimination in favor of any class of citizens simply because they belong to certain organizations.

RUBBER CONSUMPTION COMPARED WITH POPULATION.

IT is a fair assumption that with the increase in the population of the United States there should be an increase in the consumption of all articles that contribute to the comforts of civilized life; and it may also be reasonably assumed that this consumption will increase more rapidly than the growth of population, for, taking one decade with another, if not one year with another, the purchasing power of the individual is constantly growing.

But in the consumption of rubber goods in this country the increase has so greatly surpassed the growth of population as to be worthy of note. Here is a brief but interesting table that tells the story at a glance:

	1890.	1900.	1910.	1913.
Population of the United States ...	62,947,714	75,994,575	91,972,266	97,028,497
Imports of crude rubber into the United States, in pounds	33,712,089	49,397,138	101,078,825	115,880,641

It will be seen that since 1890 there has been an increase of population of a little over 50 per cent. and an increase in the amount of crude rubber imported of about 250 per cent.; or, to put the matter in another

way, in 1890 the crude rubber brought into this country equaled .54 of a pound per capita, in 1900 .65—in 1910 it had reached 1.10 pound per capita and in 1913 1.19—showing a constantly increasing importation of crude rubber as compared with population. All of this rubber has been manufactured in this country, and by far the greater part of the resulting product consumed here.

The increase in consumption has extended into every department of manufacture. That would naturally be so, as with the growth of manufacture there would be a continually increasing demand for belting, and with increased traffic more and more packing and hose would be needed; while the general tendency to look after physical comfort that comes with enlarging prosperity would mean the consumption of more rubber shoes to protect the feet from wet, and the consumption of more hot water bottles to drive away twinges of rheumatism where the proper protection afforded by rubber shoes had been neglected. But the great increase in consumption of crude rubber in this country is attributable, of course, to the vast proportions assumed by the tire industry. In 1890 there practically was no manufacture of rubber tires in the United States, except for the bicycle; and that industry consumed less than a million pounds per year. In 1900 the making of automobile tires had reached an annual aggregate of only about 60,000, while in 1913 it is safe to say that 7,500,000 casings, and probably an equal number of inner tubes, were made in the United States. This enormous use of crude rubber would account for the consumption, probably, of over 50,000,000 pounds—or more than the entire rubber importation into our ports thirteen years ago.

THE BINDING TIES OF TRADE.

THE thing that *should* put an end to war is an ethical appreciation of its iniquity, but the thing that actually *will* put an end to war, some day—and that day not so very far distant—is the human instinct for swapping, or, if you prefer—trade. Trade is the great destroyer of national barriers, the supreme harmonizer and unifier. What's the use of shooting a man if he's got a good bargain to offer?

All of which is more or less apropos of the sixth annual "International Congress of Chambers of Commerce and Commercial and Industrial Associations," held in Paris early in June, attended by a thousand delegates from thirty-seven different countries—all the civilized countries of the globe,—and some still on their way towards civilization. This round regiment of men, commercial leaders in their respective communities, represented 369 chambers of commerce and various kindred associations; and they came together with one purpose—to see if they could not increase the trade of the world, and particularly commerce with one another.

All sorts of matters were discussed, from the purification of advertising to the maintenance of an international gold reserve in a number of different countries, to be drawn upon whenever any country seemed to need a little financial ballast. The chairman of the committee of arbitration of the Chamber of Commerce of the State of New York submitted a plan for international commercial arbitration, a system which certainly ought to work as well between citizens of different countries as it does between citizens of the same country—where it has been found to be efficient and satisfactory, and a vast improvement over resort to the courts.

There is not a people on the face of the earth that is not worth knowing; and there isn't a nation that hasn't something which we ought to have, and that hasn't some want which we ought to supply. In a business way we probably know more than, say—taking a couple of the participants in the congress at random—Peru and Portugal, but we can learn something from them, and we can teach them, possibly, quite a good deal. And both of these are very satisfying achievements. These annual commercial congresses are, in the language of the street, "all to the good."

AND WHY NOT RUBBER TENNIS COURTS?

EVERY new rubber exposition brings its distinct novelties. Probably not the most important, but certainly one of the most interesting innovations of the rubber exposition now in progress in London, is the rubber tennis court, contributed for the occasion by one of the large English manufacturers in conjunction with the Rubber Growers' Association of London. The court is constructed of slabs of rubber, colored green, to be pleasing to the eye, and marked off with inlaid strips of white rubber. This court is receiving a thorough trial, both from amateur and professional players, and their verdict will be awaited with interest.

But in the meantime, viewed from this dispassionate distance, a rubber tennis court certainly seems feasible. Its original cost of course would considerably exceed that of a dirt court or of one laid out on a lawn, but on the other hand its permanency would be vastly greater; and there would be additional advantages—for instance,

in its dustlessness and in its obviation of the perpetual remarking of the lines. Then again, it would be more comfortable to the players' feet than a court with a hard surface, and would be considerably more conducive to the preservation of one's equanimity under those mishaps—which will occur in the best regulated games—where the player involuntarily comes down on some super-sensitive part of his person.

A resilient court would undoubtedly add considerably to the liveliness of the ball, and this perhaps would seem objectionable to players accustomed to a less responsive ground. But it would be as fair for one as for the other. In any event this rubber tennis court connected with the London show is something that will interest not only those addicted to the popular and salubrious game of tennis, but even more the producers of rubber; for if all the tennis courts in the world, or even one in a hundred of them, were to be laid with rubber, a new use would be found for this product of very pleasing proportions and far reaching possibilities.

BRAZIL TO BORROW A HUNDRED MILLION MORE.

BRAZIL has been casting about for some time to see where she could borrow $100,000,000 to pay off some rather pressing matters. England has been Brazil's source of financial supply for a long time, but England already has over half a billion dollars invested in one way and another in that country and apparently begins to feel rather conservative regarding further advances. Moreover, the Brazilian government now has a foreign indebtedness of over four hundred million dollars, and last year its expenditures exceeded its income by over eleven million. German financiers have been appealed to but have not proved particularly responsive.

It appears now, however, that this loan will be made, not by the financiers of any one country, but by an international group of bankers, probably about the same group as co-operated to assist China. It is stated that some of the large New York banking interests will participate in this Brazilian financing to the extent of twenty million dollars. Under just what terms this loan will be made does not yet appear, but the probability is, under existing conditions, that they will be fairly onerous.

It is unfortunate that Brazil, with her vast wealth in rubber trees, not ten per cent. of which have probably yet been touched, and with her great coffee product and other wonderful resources, should be compelled to burden herself with debt.

THE DEMORALIZING FORCE OF HOLIDAYS.

THE medical superintendent of a large manufacturing corporation, in a recent address before an efficiency society, discussed the relation existing between the weekly day of rest and the effectiveness of the workman. He had kept a careful record of 1,300 accidents in the plant with which he was connected and found that of this number 253 occurred on Mondays, 196 on Tuesdays, 194 on Wednesdays, 197 on Thursdays, 195 on Fridays and 265 on Saturdays. That is, from Tuesday to Friday, inclusive, the average number per day was practically the same, varying only from 194 to 197, while on Saturday the number increased over 35 per cent. and on Monday was 30 per cent. above the normal. The explanation given by the doctor—which would be obvious without any expert authority—lies in the fact that on Saturday the workman has his mind on the coming holiday rather than upon his work, while on Monday he has not yet recovered from the strain and fatigue of the "day of rest."

These same conditions hold good to even a greater extent with the annual two weeks' vacation. Without any statistical table for reference, everyone knows that the efficiency of the workman, whether in clerical or factory capacity, is greatly diminished during the week or two before the summer holiday and during the week or two succeeding it—for the very palpable reason that preceding the vacation one's mind is naturally on time tables, hotel rates and similar preparatory details, and following the vacation some time is required to get the harness comfortably adjusted again.

But this is by no means an argument in favor of abandoning either the weekly or the annual summer holiday. Both are not only beneficial but essential. It is, rather, a mild suggestion to the workman, whether his work be mental or manual, that he should enter upon the enjoyment of his holidays with a rational regard for the maximum amount of benefit to be derived from them. Let him temper his relaxation with moderation and not rest with too much strenuosity.

PRESIDENT PENA, OF ARGENTINA, IN A BOOK WHICH is a long farrago of historical inaccuracies and unwarranted assumptions, says that the Monroe Doctrine should be called the gutta-percha doctrine because it is so elastic that it can be stretched to any conceivable degree or returned to convenient length. President Pena clearly knows about as much about gutta-percha as he does about history or the proprieties of the great office he holds. It is a matter of plain history that the United States has interposed on various occasions to protect the states of Latin America from subjection or dismemberment. It has spent blood and treasure for their freedom and stands ready to do it again. So far from coveting the soil of its neighbors it has more than once rejected proposals of annexation made by the countries to the South. Intelligent and informed Latin Americans know all this to be true, but unfortunately all Latin Americans do not come under that description. And there is another class of Latin American politicians—those who resent the fact that the United States stands ready to block any traitorous plan which these politicians would like to carry out in selling their own or a neighboring country to the highest European bidder for naval bases or colonies. Hence these tears. Pena in Spanish means pain.

New Uses for India Rubber.

The Editor of THE INDIA RUBBER WORLD *prepared this article some months ago. In view of the fact, however, that there was to be a competition on this subject at the Rubber Exhibition in London, it was not published. By the time this reaches England the Exhibition will be over, and these suggestions will not be in the way of an anti-climax.*

INDIA rubber is the Jacob, the supplanter, of the industrial world. Rubber hose dispossessed hose of leather, the rubber-covered golf ball drove out the "gutty," the motor tire banished the horse. No industry or profession but has shown rubber supplanting some time-honored object. Take, for example, the case of King David as chronicled in the first book of Kings. "David was old and stricken in years and they covered him with clothes, but he gat no heat." Then his servants got a young maid who lay in his bosom to warm him. This system presumably prevailed among elderly kings until 1850 or thereabouts, when india rubber in the form of the hot water bottle supplanted the feminine heat supplier, and has done so, to a degree, ever since.

Industrially it has insinuated itself everywhere, displacing wood, metals, fabrics and only rarely making a new and original use for its wonderfully adaptable self. It was its costliness only that kept it from further encroachment.

With rubber at a shilling or twenty-five cents a pound (and that is where it is said to be going), the great expansion in its manufacture will be in the line of further and greater encroachment.

Let's afield with fancy and picture its progress:

The growth that will come in automobile and motor truck tires has already been forecasted, but the impetus to be given to other established lines does not seem to be appreciated. All will grow greatly. The only obstacles are the increasing cost of labor—which is the most serious—and high prices for fabrics, solvents and ingredients.

INDIA RUBBER LEATHER.

In footwear of leather, rubber has already made itself a factor.

Aside from the cements used in channeling and filling, the rubber heel and sole have displaced quite a percentage of those made of leather. With low-priced, high-grade rubber, leather in soles for footwear, material for trunks, straps and a score of other uses, including machine belting and harnesses, is sure to give way to its more adaptable rival. As for shoe uppers, leather is used theoretically because of its porosity that allows heated air to escape and absorbs perspiration—this in spite of the fact that the leather is filled with oil and blacked and varnished. It is quite possible that a mixture of fibre and rubber will appear that will be cool, odorless and blackable.

As for patent leather, it is sure to be supplanted by a smooth, glossy-surfaced rubber product on a cloth backing that will not crack and will be far cheaper than the high-priced leather products. This will open a field in footwear, shopping bags, ladies' belts, etc., etc.

Indeed, wherever leather is used today rubber will soon prove a formidable rival.

INDIA RUBBER LUMBER.

Mats, matting and tiling of india rubber are already extensive factors in home, office and factory furnishing. But why not flooring of hard or semi-hard rubber? As has been proved in tests of tiling wear, it will outlast stone or wood. It can be made in any color. Certainly at the present price of hardwood flooring, with rubber at 25 cents a pound, it could compete. Nor would it need varnishing, waxing or oiling—simply polishing. It could easily be molded with a semi-hard lower side for nailing and be matched and furnished in strips of any length or width. It would be practically fireproof, and not inflammable as is varnish-covered wood, and would neither swell nor shrink, as it would be moisture proof and vermin proof. For a white-ant country it would be invaluable. In cabinet work, hard rubber veneers to imitate ebony, mahogany, bog oak or any of the darker woods are easily made and the richest effects secured. For furniture, solid mahogany sideboards, tables and chairs may be superseded by those made of hard rubber.

In other words, hard rubber lumber is in sight—the lumber sawed, planed and turned as lumber is today and the sawdust not a waste product but molded into new lumber, and the furniture or panels or flooring after use returned to the mill that made them, and these, too, made into just as good hard rubber lumber as when first manufactured.

Better than rubber roofing will be the fibre and rubber shingles of the future. If the underwriters are fussy the fibre may be asbestos or the compounding ingredient infusorial earth.

Boat builders (wooden boats) have trouble with their lumber. When hard rubber lumber is available they will rejoice. It will be hard on those who copper sheath, or sell Anti-Toredo paints; for the busy water borer will not touch rubber.

Speaking of hard rubber lumber, who can say that a factory for turning it out will not one day be established in Singapore, to make boxes in which to ship rubber? The boxes of course to be sawed up into short vulcanite sheets for insulation work, once their duty as rubber carriers is finished. At least it would not be difficult to make wooden boxes with a thin coating of hard rubber vulcanized to the wood, forming a clean anti-sliver coating. Such boxes could easily be ventilated and should find use when empty.

Great European ports send to South America for Greenheart logs to build their docks, and a costly product it is. Iron columns covered with a thin film of hard rubber should be cheaper and far more durable. So, too, the protection of iron and steel in scores of places where they perish from oxidation would prove a simple, effective solution of this evil.

SEMI-HARD PIPE.

As liquid conductors there is a possibility that semi-hard rubber piping may compete with copper and lead pipes. So, too, lead-armored cables may give way to those coated with semi-hard rubber. The product would be just as flexible, much lighter, and cheaper.

INDIA RUBBER WOODENWARE.

In the line of sports will come hard rubber golf clubs, cricket and baseball bats, fishing rods, polo mallets and balls, and so on. The city policemen will no longer use a club of locust wood; it will be of hard rubber. And this will extend all through the line of woodenware where anything especially tough, flawless and fine is required.

RUBBER LINOLEUM AND OIL CLOTH.

Speaking again of floor coverings, oil cloth and linoleum as such cannot exist once rubber is really cheap and plentiful. Every rubber manufacturer knows that a pound of Pará rubber will go as far in compounding as ten pounds of boiled or oxidized oil. The oil costs, say, seven cents a pound, and rubber at less than four times that price will certainly

dispossess it. Then, too, it is more flexible, easier to work and far more durable.

Artificial leathers are likely to find it difficult to compete with the rubber product that will come in with low-priced rubber. Indeed, all of the rubber counterfeits made of cellulose, celluloid or casein, whether soft or hard, are likely to find that the original will be preferred just as soon as it is the cheapest.

RUBBER SOUND DESTROYERS.

India rubber as a deterrent to noise has gone far. It will go farther. The rubber-shod taxicab has stilled the echoing klipperty-klip of the flat-footed cab horse. It should be used to silence the clash and clatter of the modern city electric car and the jar and clamor of elevated and subway trains. In a score of industries it is needed—as cushions under modern printing presses, laundry machines and other city nuisances.

Would it not be possible also to still the shrill clatter of the thousands of shuttles in great weaving plants by the use of rubber?

The boiler maker certainly needs some sort of rubber silencer for his work, and the pneumatic riveter will not be perfect until rubber cushions absorb the far reaching sound of its blows.

When this is accomplished and the day of deliverance comes, every bell in Christendom should send out its peal of praise—with soft rubber tongues.

RUBBER GLUE AND MUCILAGE.

Into the broad field of glues, mucilages and other adhesives will a great variety of new rubber cements force their way. The only deterrent will be the high cost of solvent. But with low-priced *Hevea* rubber and the consequent fall in the price of rubber scrap, that will be melted or distilled, and new stickers and valuable by-products will be obtained that will find wide markets. Certainly a rubber glue that would be self-vulcanizing and that would not soften and let go in damp weather would be a boon.

INDIA RUBBER ROADS.

Roadways of rubber are ideal, theoretically, but the asphalts under modern manipulation are likely to be always cheaper and just as effective. Rubber sidewalks (once a non-slippery compound is evolved) made of scrap are likely one day to run for miles in the modern city.

INDIA RUBBER PAINTS.

These have in the past been widely advertised and sold, but they were oil or asphaltum at heart, not rubber. Scrap rubber is likely to furnish actual rubber paints and real rubber roofing. It will mean experiment and adjustment and a new series of dryers, but that should not baffle the chemist in this day of rubber expansion.

RUBBER CAR SPRINGS.

As the price of rubber in the past increased certain products disappeared—the rubber car spring for example. As an assistant for the excellent steel springs of today, with a new and lower scale of prices it will come back, not only in railway carriages, but in manifold places where cost has prevented its use. Wherever there is a shock there will be put a rubber spring; wherever a rattle, an anti-rattler.

INDIA RUBBER PAPER.

Goodyear had a book with pages of rubber and fibre. Then rubber became costly and it was forgotten. For certain moisture proof papers rubber is certainly better than oil. In wall papers of the Lincrusta Walton type it is more than a possibility. Bible papers made of pure gum would be wonderfully suited to certain modern creeds.

RUBBER CROCKERY.

It is with much doubt that I make this suggestion—that of white rubber dishes for the great restaurants, or bath tubs of hard rubber for the home. Perhaps it is as well not to encroach upon the pottery industry until rubber becomes as cheap as Kaolin.

The list grows long, and this is but a beginning; there are scores of industries yet to be viewed, and above all the back bone of all prosperity—the farmer—has been neglected. Perhaps—and this is but a vague suggestion—if he raised his milk-fed chickens on rubber latex, egg shells would cease to be fragile.

The Crude Rubber Export Taxes of the World.

IN the January issue of THE INDIA RUBBER WORLD there was a table covering ten pages giving the rubber tariffs on manufactured goods of eighteen foreign countries, each of which imported American rubber goods in excess of an annual value of $100,000. It was the first time any such comprehensive tabulation had ever been attempted, and it created considerable comment and has proved of great value to American manufacturers, who can tell by reference to this table just what obstacles they have to contend with in introducing their goods into foreign markets.

We present in this issue a table showing the export duties levied on crude rubber in all the countries of the world from which any shipments of rubber are made. This tabulation is divided into four general groups—Central America, South America, Africa and the East—and includes seven countries in Central America; six in South America; twenty-six countries, colonies and provinces in Africa, and twenty-two countries, dependencies and islands in the East and Far East. This is the first time that a comprehensive survey of crude rubber export tariffs has ever been made, and while this may not prove of the same value to American manufacturers as the table of import tariffs which appeared in January, it will certainly be of great interest to all men associated with the rubber industry, as showing the burden with which rubber starts for its market from the various ports from which it is shipped.

An impressive feature of this tabulation is the unevenness of this system of taxation, a number of countries exporting their rubber entirely free of tax, others paying so slight a duty that it is almost negligible, while in other cases, as in exports from Pará, for instance, the burden is really onerous. Comparing the exports of rubber from Pará, on which the tax, all told, including federal, state and local levies, amounts to over 40 per cent., with the free condition of rubber leaving the Straits Settlements and Ceylon and the very light burden laid upon it in other eastern points, it becomes obvious why the country of the Amazon finds it so difficult to compete with the plantation rubber of the East. But the various Brazilian authorities are already taking steps materially to decrease the present export burden on the rubber of the Amazon.

As the monetary denominations and the system of weights used in the various countries mentioned in the table are nearly all different from those used in this country, American equivalents are given in every case; and where the duty is a specific one it is given first in the currency and in the weights prevailing in the respective countries, and then in a parallel column the equivalents in American currency and avoirdupois weight are given. Where the duty is ad valorem, of course a parallel column of equivalents is not necessary.

CENTRAL AMERICA:

MEXICO.

Equivalents in American denominations.

The monetary unit is the silver peso of 100 centavos, = 50 cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duties per 1,000 kilos.	Equivalent in U. S. currency per 100 lbs.
Guayule shrub, in natural state or crushed	(gross) 15 pesos	$0.34
Chicle	(net) 20 pesos	.45
Rubber	free	free

GUATEMALA.

Equivalents in American denominations.

Currency is the paper dollar, average value = 5½ cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty per quintal (100 lbs.).	Equivalent in U. S. currency per 100 lbs.
Rubber	10 pesos	$0.55

HONDURAS.

Equivalents in American denominations.

The monetary unit is the silver peso of 100 centavos, = 40 cents United States currency. The metric system of weights and measures; Kilo. = 2.2 pounds.

	Duties per quintal (100 lbs.).	Equivalent in U. S. currency per 100 lbs.
Rubber	3 pesos	$1.20
Chicle	1 peso	.40

BRITISH HONDURAS.

Equivalents in American denominations.

Monetary unit is the dollar of 100 cents, = the United States dollar. Weights and measures same as Great Britain; Hundredweight = 112 lbs.; ton = 2,240 pounds.

	Duty per pound.	Equivalent in U. S. currency per 100 lbs.
Chicle	½ cent	$0.50
Crude rubber	free	free

NICARAGUA.

Equivalents in American denominations.

The monetary unit is the silver dollar of 100 centavos, = 40 cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty per pound.	Equivalent in U. S. currency per 100 lbs.
Rubber	4 centavos	$1.60
"Tuno"	½ centavo	.20

SALVADOR.

Equivalents in American denominations.

The monetary unit is the peso of 100 centavos, the real value of which is about 38 cents United State currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty per quintal (100 lbs.) (gross) payable in silver.	Equivalent in U. S. currency per 100 lbs.
Rubber (hule)	10 pesos	$3.80

COSTA RICA.

Equivalents in American denominations.

The monetary unit is the gold colon of 100 centavos, = 45½ cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty per kilo.	Equivalent in U. S. currency per 100 lbs.
Rubber	1 centavo	$0.21

SOUTH AMERICA:

VENEZUELA.

Equivalents in American denominations.

The monetary unit is the bolivar of 100 centimes, = 19 cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty per 100 kilos.	Equivalent in U. S. currency per 100 lbs.
Rubber (national tax)	25 centimes	$0.02

BRITISH GUIANA.

Equivalents in American denominations.

The monetary system, weights and measures same as in Great Britain: 1d. = 2 cents; hundredweight = 112 pounds; ton = 2,240 pounds.

	Duty per pound.	Equivalent in U. S. currency per 100 lbs.
Rubber from crown lands	1d.	$2.00
Balata from crown lands (Otherwise free.)	1d.	2.00

DUTCH GUIANA AND FRENCH GUIANA.

There is no export duty on rubber or balata in Dutch Guiana, Trinidad or Tobago. In French Guiana there is a small government tax.

BRAZIL.

Equivalents in American denominations.

The gold milreis of 1,000 reis = 54 cents United States currency par value, 32.4 cents exchange value; the metric system of weights and measures; kilo = 2.2 pounds.

The export taxas are levied on the "Pauta" or official weekly average price of rubber. In Pará both federal and state taxes are levied on rubber exports; in Amazonas only a state tax is levied; in Acre only the federal tax, while in Bahia state and municipal taxes are levied on all rubber exports. Detailed table is given below:

	Duty ad valorem, per cent.
Pará—	
Federal tax, on all grades	18
State taxes: Fine and coarse rubber and caucho	19½
Fine rubber sheet, coarse and caucho (washed)	18
Additional taxes, State Hospital	2½
"Bolsa" Exchange building	3 to 4
Mayoralty	1
Amazonas—	
State tax, on all grades	14
Acre—	
Federal tax	20
Bahia—	
State and municipal tax on all grades of Maniçoba	14

PERU.

Equivalents in American denominations.

The monetary unit is the gold libra or English sovereign. It is divided into 10 soles of 100 centavos; 1 sol = $0.486. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty ad valorem, per cent.
Rubber on valuation in Liverpool	8

ECUADOR.

Equivalents in American denominations.

The monetary unit is the sucre of 100 centavos, actual value of which is about 44½ cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty.	Equivalent in U. S. currency per 100 lbs.
Rubber	15 centavos per Kilo	$3.00
Surcharges, various, amounting to	8 centavos per Kilo	1.62

Additional special duties:

Exports from—		
Bahia and Caraquez	1 sucre per quintal	.44
Manali	50 centavos per Kilo	10.00
Santa Elena	½ centavo per Kilo	.11

COLOMBIA.

No export tax on rubber.

BOLIVIA.

Equivalents in American denominations.

The monetary unit is the Boliviano of 100 centavos, equaling 39 cents United States currency. One American dollar = 2.50 Bolivianos. The metric system of weights and measures.

The export tax on rubber is collected on the following scale of values:

	Duty ad valorem, per cent.
When quotation of rubber is from 51 to 73 cents	2
When quotation of rubber is from 75 to 97 cents	4
When quotation of rubber exceeds 99 cents	6

The same scale of percentage applies to the export of the ordinary classes (Sernamby, Mollendo and Caucho), with the rebate of 30 per cent. on the value fixed for fine rubber.

In case the tax imposed by neighboring foreign custom houses is less than that of Bolivia, the Executive Power can make a proportionate reduction in the rubber export duties.

In fixing the official value 70 per cent. of the London market is taken, quotations being transmitted every fortnight by the Bolivian consulate in London.

AFRICA:

GERMAN EAST AFRICA.

Equivalents in American denominations.

The monetary unit is the rupee of 100 heller = 32.4 cents United States currency; replaces rupee of 64 pesa.

	Duty per 100 lbs.	Equivalent in U. S. currency per 100 lbs.
Rubber	18 rupees.	$5.83
Rubber obtained from plantations	Free, but subject to statistical fee of 8 pesa per 100 rupees or part of 100 rupees.	½ of 1 per cent. ad valorem.

GERMAN WEST AFRICA (KAMERUN).

Equivalents in American denominations.

Reichsmark of 100 pfennigs = 24.3 cents United States currency. The metric system of weights and measures.

	Duty ad valorem, per cent.
Rubber on basis of 4 marks per Kilo (or 44 cents per pound)	10
Rubber harvested in plantations free of duty, on compliance with special regulations.	

FRENCH CONGO.

Equivalents in American denominations.

The monetary unit is the franc of 100 centimes = 19 cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

The following duties are to be paid on exports by land or sea from French Equatorial Africa, including the territories of Gaboon:

	Duty ad valorem, per cent.
Rubber	10

BELGIAN CONGO.

Equivalents in American denominations.

Current money is the franc of 100 centimes = 19 cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty per 100 Kilos.	Equivalent in U. S. currency per 100 lbs.
Grass rubber when price is not over 3 francs per Kilo (26 cents per lb.)	free	free

Grass rubber when price exceeds 3 francs per Kilo	f. .25	$0.02
Tree or vine rubber, price not over 5 francs per Kilo (45 cents per lb.)	free	free
Tree or vine rubber, exceeding 5 francs per Kilo, but not exceeding 7 francs (63 cents per lb.)	f. .25	$0.02
Tree or vine rubber, exceeding 7 francs per Kilo, but not exceeding 8 francs (72 cents per lb.)	f. .50	$0.04
Tree or vine rubber, exceeding 8 francs per Kilo, but not exceeding 12 francs ($1.08 per lb.)	f. 1.00	$0.08
Tree or vine rubber, exceeding 12 francs per Kilo ($1.08 per lb.)	f. 1.25	$0.10
Plantation rubber	free	free

At the same time as the export duties, the following special duties are collected on rubber, except plantation rubber collected in the colony. They are payable according to weight of product ascertained on exportation.

	Duty per Kilo.	Equivalent in U. S. currency per 100 lbs.
Grass rubber	f. 0.50	$4.30
Tree or vine rubber.	f. 0.75	$6.40

For all products not exported in bulk the declaration must state the gross weight of the packages, and the collector will calculate the net dutiable weight by deducting from the gross weight the following rates:

For packings of canvas. 3 per cent. of gross weight
" " mats... 6 " " "
" " wood..20 " " "

Rubber passing through Leopoldville in transit, whether up or down the river, shall pay for handling and warehousing, irrespective of duration, a sole tax of f. 0.12 per Kilo (= $1.00 per 100 pounds).

FRENCH WEST AFRICA.

(Including Senegal, French Guinea, Ivory Coast, Dahomey, the Upper Senegal and Niger, and the civil district of Mauritania.)

Equivalents in American denominations.

The monetary unit is the franc of 100 centimes = 19 cents United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty ad valorem, per cent.
Rubber, duty to be assessed on value at time of export as indicated in official table	7

FRENCH PROTECTORATE ON LAKE CHAD.

Equivalents in American denominations.

Money, weights and measures as in French West Africa.

	Duty ad valorem, per cent.
Rubber duty to be collected on basis of 4 francs per Kilo, or 33 cents per pound.	10

MADAGASCAR AND DEPENDENCIES.

Equivalents in American denominations.

Money, weights and measures as in French West Africa.

	Duty per Kilo., net.	Equivalent in U. S. currency per 100 lbs.
Rubber (to be levied only to December 31, 1914)	40 centimes	$3.40

PORTUGUESE SOUTH EAST AFRICA.

This includes Mozambique, Lourenço Marques and Inhambane, but excepting territories of the Mozambique Co.

Equivalents in American denominations.

The monetary unit is the Milreis of 1,000 reis =$1.07 United States currency. Public accounts kept since July 1, 1913, in escudos of 100 centavos, corresponding with former milreis. The metric system of weights and measures; Kilo = 2.2 pounds.

	Duty ad valorem, per cent.
Rubber to foreign ports	8
Rubber to Portuguese ports	6

PORTUGUESE SOUTH WEST AFRICA.

This includes Angola, Districts of Loanda, Benguela and Mossamedes.

Equivalents in American denominations.

Money, weights and measures same as in Portuguese South East Africa.

	Duty ad valorem, per cent.
Rubber exported from Loanda	9
Rubber exported from Novo Redondo, from Benguela and Mossamedes	12

MOZAMBIQUE.

This includes Manica, Sofala and territories of the Portuguese Mozambique Co.

Money, weights and measures same as in French West Africa.

	Duty ad valorem, per cent.
Rubber of all kinds	8

QUILIMANE, CHINDE AND ZAMBEZIA (PORTUGUESE).

Money, weights and measures same as in French West Africa.

	Duty ad valorem, per cent.
Rubber for foreign ports	8
Rubber for Portuguese ports	6

BRITISH NYASALAND (LATE BRITISH CENTRAL AFRICA).

Equivalents in American denominations.

Money, weights and measures same as Great Britain. Penny = 2 cents; hundredweight = 112 pounds; ton = 2,240 pounds.

	Duty per pound.	Equivalent in U. S. currency per 100 lbs.
Rubber other than rubber collected from cultivated trees or plants	4 pence	$8.11

BRITISH EAST AFRICA.

Equivalents in American denominations.

Rupee of 100 cents = $0.324. Weights and measures same as Great Britain; hundredweight = 112 pounds; ton = 2,240 pounds.

	Duty ad valorem, per cent.
India rubber (other than rubber obtained from a plantation created in open land, not in connection with the lease of a forest)	10

UGANDA PROTECTORATE.

Equivalents in American denominations.

Rupee of 100 cents = $0.324 United States currency. Weights and measures same as Great Britain; hundredweight = 112 pounds; ton = 2,240 pounds.

	Duty ad valorem, per cent.
Rubber, other than plantation rubber	10

LIBERIA.

Monetary unit = American dollar of 100 cents. All weights reckoned avoirdupois.

	Duty per pound.	Equivalent in U. S. currency per 100 lbs.
Rubber	.12	$12
Gutta percha	.12	$12

SOMALILAND PROTECTORATE, ZANZIBAR PROTECTORATE, SIERRA LEONE, GOLD COAST, GAMBIA, NIGERIA (NORTH AND SOUTH).

Rubber is free from export duties in all the above countries.

THE EAST.

DUTCH EAST INDIES.

Equivalents in American denominations.

The monetary unit is the Dutch florin of 100 cents = $0.405 United States currency. The metric system of weights and measures; Kilo = 2.2 pounds.

In article 5 of Indian Tariff Law, November 3, 1909, the Governor General is authorized to levy in the regions enumerated in article 1, viz.: West coast of Sumatra, Residencies of Tapanuli, Singkel, Benkulen, Lampong, Palembang, Banka, Billiton and South and East division of Borneo, duties not exceeding 10 per cent. on *getah* rubber and other gums and resins. Ordinances of December 7, 1910, and April 18, 1911, provide under Tariffs I, II, III and IV for rubber and gutta percha, and other substances included in *"getah."*

	Duty ad valorem, per cent.
I. West coast of Sumatra and Celebes, Island and Dependencies, Residencies of Tapanuli, Benkulen; Districts of Lampong, Palembang, Djambi; Banka and Dependencies; West Division of Borneo, Menado, Amboina; Ternate and Timor and Dependencies, and Billiton	5
II. South and East Division of Borneo..	8
III. Portion of East Coast of Sumatra included in customs territory; Indragiri Division, Kateman Territory, and Danei of Karimum Division of Residency of Riau and its Dependencies.	8
IV. Government of Atjeh and Dependencies, Singkel Subdivision	5
Tamiang	8
Grand Atjeh Division except Waay Island	10
Other portions of government except Waay	10

A special exemption is made as to Tariffs I, II, III, IV in the case of gutta percha extracted by some industrial process from the leaves of the gutta percha trees, and also in favor of rubber and gutta percha constituting the output of undertakings for the methodical plantation of vegetable products yielding gutta percha and rubber, provided that in both cases the exemption be warranted by production of a certificate issued by a European official in charge of the administration.

JAVA AND MADURA.

Rubber free from duty, but Governor has right to impose a tax.

FEDERATED MALAY STATES—PAHANG, NEGRI SEMBILAN, PERAK, SELANGOR.

Equivalents in American denominations.

Standard coin is Straits Settlements silver dollar = $0.567 United States currency. Weights: Picul = 133⅓ pounds avoirdupois; Kati = 1⅓ pounds avoirdupois; Kilo = 2.2 pounds.

	Duty.	Equivalent in U. S. currency per 100 lbs.
Jelutong	50 cents (Straits) per picul	21 cents

	Duty ad valorem, per cent.
Gutta percha as defined in Forest Rules, 1909, as other than "gutta percha cultivated"; also bark and any other part of trees yielding such gutta percha	10
Gutta percha cultivated on alienated land to satisfaction of resident	2½
Any cultivated rubber	2½
Latex (a gallon of latex being equivalent to a pound of cultivated rubber of the best quality)	2½

PROTECTED MALAY STATES—KEDAH.

Equivalents in American denominations.

The standard coin is the Straits Settlements dollar = $0.567 United States currency. Picul = 133⅓ pounds avoirdupois; Kilo = 2.2 pounds.

	Duty ad valorem, per cent.
Rubber, wild	15
Rubber, plantation	2½

PERLIS, TRENGGANU, KELANTAN.

There is no duty on rubber exports from these provinces.

BRITISH NORTH BORNEO.

Equivalents in American denominations.

The standard coin is the Straits Settlements dollar = $0.567 United States currency. Picul = 133⅓ pounds avoirdupois.

	Duty ad valorem, per cent.
Gutta percha, red	10
Gutta percha, white	10
India rubber, other than cultivated	10
Cultivated rubber	free

(For other parts of Borneo see Dutch East Indies.)

SARAWAK.

Equivalents in American denominations.

Straits Settlements dollar = $0.567 United States currency. Picul = 133⅓ pounds avoirdupois.

	Duty per picul.	Equivalent in U. S. currency per 100 lbs.
Gutta Jelutong	$0.40	$0.17
Gutta Jangkar	1.50	.64
All other kinds	8.00	3.40
India rubber	10.00	4.25

COUNTRIES FREE FROM EXPORT DUTY.

There is no export duty on rubber from the following countries: British India, Ceylon, Beluchistan, Aden, French Indo China, Siam, Papua, Straits Settlements; or from the Islands of Fiji, Solomon, Gilbert and Ellice, Norfolk, Tonga, New Hebrides, Samoa, Seychelles.

The Making of a Fountain Pen.

THAT gold mine of valuable information, the Bureau of Foreign and Domestic Commerce, of Washington, recently announced that the export of fountain pens from the United States reached a total of 309,200 for the last fiscal year; over half of these pens, or 169,000, going to England, about 50,000 to Canada, 30,000 to France and the rest being scattered all over the globe.

Very few people have any conception of the extent of the fountain pen industry in the United States. The Waterman company alone had an output last year of 2,500,000 pens; and as these pens retailed at anywhere from $3 to $4, it is safe to say that the market value of this company's product for 1913 was somewhere from $8,000,000 to $10,000,000. And it is probably safe to say that, including all makes and brands of fountain pens made in this country, the yearly product would reach 7,000,000 or 8,000,000 pens. So that it will be seen at a glance that the fountain pen, which, with the exception of the gold pen point, is entirely of rubber, has become quite an important article of manufacture in the hard rubber industry.

It often happens that there is vastly more detail to a small article than there is to a big one. For instance, there is a great deal more detail to a watch than there is to a bath tub. Now the fountain pen can be slipped into the pocket and not be felt and yet there is a great deal of labor involved in its construction. The process of its manufacture is interesting enough to serve as an excuse for going a little into detail as to how these pens are made.

ROLLING THE RUBBER INTO SHEETS.

The rubber goes through the usual processes of washing, drying and mixing, the proportion of sulphur being about 33 per cent. of the weight of the rubber. From the mixing mill the rubber is passed through sheeting rolls, as shown in Figure 2, and the sheets are cut into strips which form the barrel and cap of the fountain pen. These strips are rolled on small spindles of the required diameter, the rolling being done on a heated, smooth steel table. Foil is wound over the rubber, and the spindles, with their rubber covers, are deposited in steel boxes and buried in powdered soapstone. These boxes are put in vulcanizers, the open steam cure being 300 degrees for about 14 hours.

The rubber should be hard enough to keep its shape and yet must have sufficient resiliency so that all the joints will fit together ink-tight. In other words, it will not do to vulcanize the pens too hard.

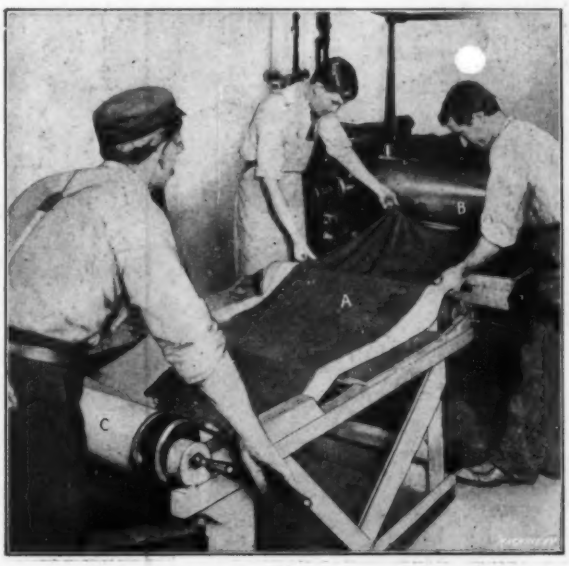


FIG. 2. ROLLING THE RUBBER OUT INTO SHEETS OF THE REQUIRED THICKNESS.

While considerable machinery is used, there is much hand work that requires exceptional skill, for, with the exception of the chasing, all the work after the pen has been vulcanized requires a combination of delicate mechanisms and skilled workmanship.

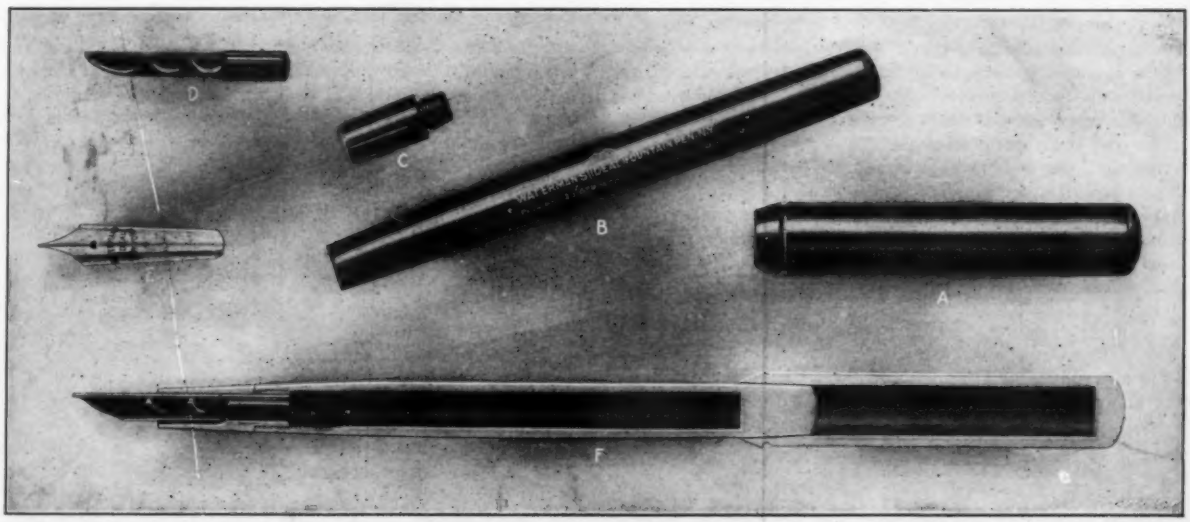


FIG. 1. COMPONENT PARTS OF THE FOUNTAIN PEN. A IS THE CAP; B, THE BARREL; C, THE POINT SECTION; D, THE "SPOON" FEED; E, THE PEN POINT; AND F, A SECTIONAL VIEW OF THE ASSEMBLED PARTS.

Figures 3 and 4 give a detailed view of the turning of the cap and of the barrel of the pen.

TURNING THE RUBBER CAP AND BARREL.

The rubber cap, shown at A in Figure 1, is made from a cup, and for the rough-turning operation is placed on an arbor B as shown in Figure 3. The turning is accomplished with a flat hand tool C, the operator holding it in one hand, guiding it with the thumb of the other hand. The tool is held on a rest D, the cutting edge being slightly above the center of the work. The cap is finish-turned with hand tools, after which it is taper-reamed so that the hole in the cap will fit the tapered ends of the barrel.

The rubber barrel shown at B in Figure 1 is rough-turned in a lathe in a similar manner to the cap. The next operation on the barrel is to finish the two tapering ends; one end must fit the taper on the point section, while both ends must fit the tapered hole in the cap. This is accomplished as shown in Figure 4. The barrel A is held in a chuck B in a small turning machine, and the operator, by means of a flat hand tool C, turns down the tapered ends to the required taper and diameter. The tool is held on a rest D, and the taper is governed entirely by presenting the tool at the required angle.

After the front end has been turned, the barrel is reversed and the rear end is turned taper and rounded off. The barrel is then ready for reaming and tapping. The reaming is done with an ordinary flat reamer in a speed lathe, while the tapping is accomplished with a tap provided with only two rows of teeth, or, in other words, two cutting edges, the tap being practically flat.

MAKING THE POINT SECTION AND THE FEEDS.

The point section, which is marked C in Figure 1, is that part of the pen which holds the nib and the feed. This is put on a lathe and properly turned, and the threading is also done with an ordinary flat chaser similar to that used by brass finishers. The thread on the point section of course must be perfect, so that it will absolutely fit the thread of the barrel, permitting no ink to escape. After the thread has been cut the front end is reamed to fit the feed and pen point, and the external diameter is taper-turned to fit the taper on the barrel. These lathes, by the way, on which the various parts of the pen are turned, are rotated at about 2,000 revolutions per minute.

The spoon feed, which is marked D in Figure 1, conveys the ink from the barrel to the pen point. This is also made of solid rubber. This is a most important part of the pen and requires extremely accurate and careful work, for the feed pockets, the air vent and the ink fissure ducts must all be cut in their proper places with absolute accuracy.

FIG. 3. ROUGH-TURNING THE RUBBER CAP.

FIG. 4. TAPERING ENDS OF RUBBER BARREL.

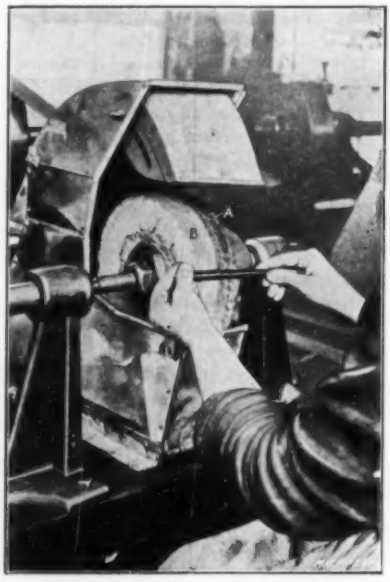


FIG. 5. POLISHING THE RUBBER PEN PARTS.

POLISHING THE RUBBER PARTS.

All the rubber parts of the pen have now been made, but are in a rough condition. The first polishing operation consists in holding the rubber pen parts on arbors, and turning them around by hand while they rest on a wet carpet-wheel buff on which water is flowing. Ashes and powdered pumice stone are applied to this carpet buff, which removes all tool marks but does not give a glossy or polished appearance.

The next operation consists in polishing the assembled rubber parts on a cotton-wheel buff as shown in Figure 5. The side A of this cotton-wheel is coated with rouge, and is slightly dampened, while the other side B is dry and is not covered with any sort of polishing material. The operator holds the pen in both hands, as shown, passing it back and forth over this cotton buff.

After polishing, the pen is tested to see that it does not leak. The assembled pen, without the feed or pen point, is placed in a tank of water, and a syringe, which has a rubber tube that fits tightly in the point section, is inserted in it. Then pen and tube are placed in the water, and the bulb is pressed, forcing air into the pen. If any bubbles are seen to rise in the water it is evident that the pen leaks and must be repaired or discarded.

STAMPING THE NAME ON THE BARREL.

As far as the manufacturing operations are concerned, the holder itself is complete, with the exception of having the name stamped on it. This is accomplished in the device shown in Figure 6. The barrel is placed on an arbor, on which it is clamped, this arbor being connected to a square slide B working against the tension of a spiral spring. The barrel rests between two rolls C and D, the latter roll having the stamp cut in relief, which is to be reproduced on the barrel. The handle E for operat-

ing the rolls is placed in the roll D, the latter being connected to the roll C by a block chain. The groove in the roll C is tapered

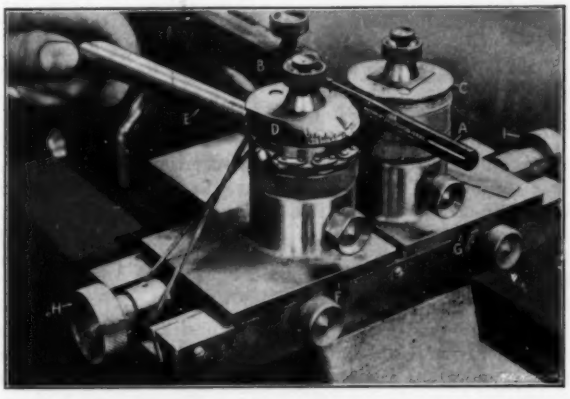


FIG. 6. ROLLING THE NAME IN THE RUBBER BARREL.

slightly to correspond with that on the barrel, and fits snugly. The illustration shows a barrel just after the stamping operation. The rolls are held on sliding bases, F and G, which can be adjusted back and forth by the thumb-screws H and I, so that pen barrels of various diameters can have the name rolled on them in this same fixture.

CHASING THE BARREL AND CAP.

The chasing is an exceedingly interesting process. It is done by a special machine, which is shown in Figure 7, but it is rather a complicated and involved process and could hardly be explained without going into too much detail for a general description like this. In the machine shown in the illustration there are six barrels being chased simultaneously. One feature of the machine that is worthy of particular attention is the fact that this chasing cannot be done by steel cutters, as they do not retain their edge sufficiently long. A steel tool will work for a short time but as soon as it becomes dull it tears the rubber and spoils the work, so the chasing is done by a black diamond similar to those used in truing emery wheels except that they have a very sharp cutting edge. After the chasing is completed the pen is finished and ready for the market, with the exception, of course, of putting in the gold pen, a very necessary but simple detail.

FIG. 7. SPECIAL AUTOMATIC MACHINE FOR CHASING THE RUBBER BARREL AND CAP.

In view of the fact that, properly treated, a fountain pen is almost indestructible, one might imagine, at the rate of the present output, that the market would soon become supplied and the demand diminish. But this is not likely to happen, because the American market alone is constantly increasing—both by reason of the fact that more people are arriving every year, in one way and another, to increase the population, and by reason of the further fact that more people of those already here are constantly discovering the advantage of a fountain pen—and moreover, in addition to the American market, vast as it is, the whole civilized world has become a market for the fountain pen, for it is an article that doesn't depend for its use upon the season, or the weather, or the climate. It is just as useful at the equator, for a traveling man—to write down a large order for American goods, for instance—as it is for those who sail the northern seas when they want to jot down the daily happenings in the official log. There will always be a demand for it, and an increasing demand, wherever men know how to write.

PRINCIPAL RISKS OF AVIATION.

GERMAN expert opinion is to the effect that the long and successful flights of the Zeppelin airships have proved their capacity to be such that their practical utility will not be affected by the various mishaps they have met with, nor by the risks thus shown to exist. In a discussion of these risks they have been classified as follows by a German expert:

1. STORMS: Interpreting the term as meaning winds blowing horizontally, they constitute a lower risk than is generally attributed to them; such conditions being, moreover, usually foreseen. If an airship, nevertheless, gets into a wind it cannot withstand, its situation becomes perilous. Increased security is, however, afforded by the high speed of modern airships.

2. VERTICAL STORMS: These storms (one of which proved fatal to the airship "L. 2") form one of the chief dangers of aviation. In very extreme cases they will arrest the power of steering and under all circumstances they cause the airship to ascend much higher than had been intended, thus leading to heavy losses of gas.

3. TEMPESTS: Thunder and lightning often accompany vertical storms, but the danger appears to be less than had at first been supposed. It is thought that the skeleton of the airship forms an excellent conductor of electricity.

4. BURNING: Unfortunately, hydrogen is the only filling gas at present known and is very inflammable. Combustion takes place with a mixture of 66.5 per cent. of explosive gas. It is therefore necessary to avoid having open fires where they can be reached by the hydrogen. It is at present impossible to provide against explosions, as it is not known to what extent balloon materials generate dangerous frictional electricity, nor what other causes may become operative.

5. INSUFFICIENT STRENGTH OF THE FRAME: It has been found that the claims otherwise usual cannot be applied to the frame of an airship. The capacity of resistance increases with the displacement.

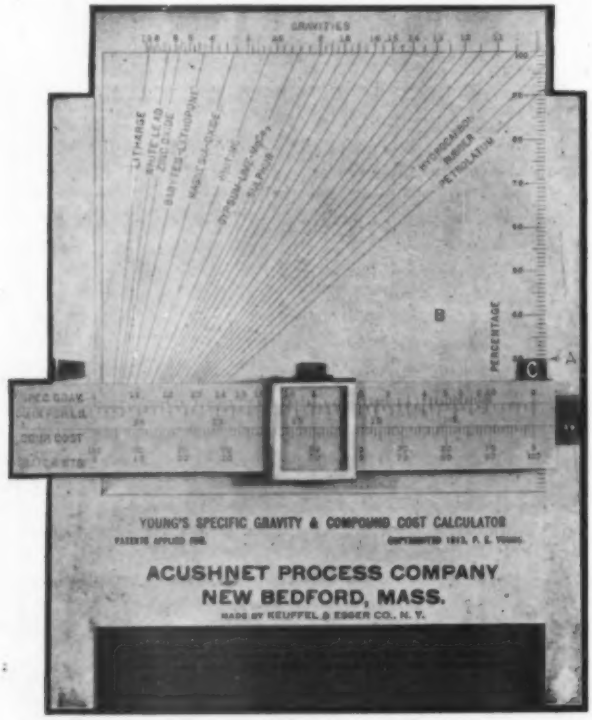
PROSPECTIVE RE-ESTABLISHMENT OF COTTON GROWING IN AUSTRALIA.

The British Cotton Growing Association, in conjunction with the Queensland Department of Agriculture and the Commonwealth Government, has excellent hopes of the re-establishment of a cotton growing industry in Australia. Thirty years ago the East and West Moreton districts had over 14,000 acres under cotton, the cultivation of which has meanwhile dwindled, owing to adverse circumstances. In view, however, of the needs of Lancashire and of the domestic industries of Australasia, the re-establishment of this cultivation is under consideration. The British Cotton Association has undertaken to guarantee a fixed minimum price of 6½d. (13.17c.) per pound for a period of three years. Skilled advice and suitable seed will be supplied to possible cultivators.

A NEW SLIDE RULE FOR RUBBER MEN.

P. E. YOUNG, of the Acushnet Process Co., has devised a calculating machine for the rubber worker which is an adaptation of the slide rule to this particular business.

By looking at the cut it will be seen that there is a kind of slide rule placed over a sliding board with most of the compounding ingredients arranged on this board according to their specific gravity. The spacing is according to the logarithmic scale and the slide rule has a corresponding scale marked specific gravity which is complementary to the scale on the board.



Each ingredient has a line on the board running to the zero point at bottom. Along the side of the board is a scale running to 100 and the fixed base board has an index mark at *A*.

On sliding out the face board directions for operating the apparatus are disclosed printed on the base board.

SPECIFIC GRAVITY.

To obtain the specific gravity of any proposed compound you first place the board in such position that the percentage of rubber is opposite the index *A*. Then move the slide across till the index *C* which is attached to the slide is on the line of the ingredient. Then move runner to left to the stop. Repeat the above operation for each mixing ingredient till the 100 per cent. of ingredients are accounted for and then read the specific gravity indicated under the hair line on the glass face of the runner.

As an example we make a compound of 45 per cent. rubber, 45 per cent. zinc oxide, 5 per cent. magnesium carbonate and 5 per cent. sulphur. By making two settings of the board and four of the slide we read off immediately 1.675 as the specific gravity of the compound. Of course, this is based on the idea that all the ingredients are simple mixtures in the compound and no chemical combination is formed which would have a different specific gravity from the mixture.

Using an ordinary slide rule for this would require that a setting be made for the percentage and specific gravity of each constituent and a table of specific gravities of each element must be at hand or known. Then each reading must be copied down and some figuring done on paper before the correct gravity is arrived at.

On the rule there is a second scale under the gravities which shows the cubic inches per pound.

The sliding board is reversible and on the other side there is a ruling of percentages. Using this table, it is only necessary to place the slide at cost of first ingredient and move the cross-slide till index *C* is at the percentage, then move runner to the left till it meets the stop. Then place index *A* at cost of next ingredient and repeat till each ingredient is accounted for. The total cost will appear under the cross-hair of the reading glass on the runner.

Another computation which may be made is that of batch weights. In this case, using the cost chart, set the cross-slide so that index registers one hundred and index *A* is at total batch weight, move the runner to the percentage of the ingredient wanted and the weight will appear under the scratch line on the runner at the lowest line on rule marked "Batch Weight."

It would appear that this would prove a time saver for any one whose duty or interest requires the calculations outlined above on rubber compounds.

This article is useful not only to the rubber industry, but to other like industries. For example: If linseed oil is substituted for "rubber," as its specific gravity is .937, which is close to that of rubber, the calculation for the specific gravity of mixed paints may be made. In fact, such an instrument has been used in England for a long time.

The article is made by Keuffel & Esser Co., of New York, and is made in their careful and accurate style.

AMERICAN COTTON INDUSTRY WITHOUT A TRUST.

Mr. C. J. H. Woodbury, Secretary of the National Association of Cotton Manufacturers, is authority for the statement that those capable of giving sound opinions believe that there is an adequate cause for the superior quality of foreign cotton goods and for many of the economies in their production in the concentration of effort in the methods of cotton manufacturing, to which the law in Europe gives full acquiescence.

SKATING ON ROUGH ROADS.

Roller skating is a pastime that is exceedingly popular with young people everywhere, but for its thorough enjoyment it requires smooth walks or pavements. Application has been made for a patent that will enable a person to skate with comfort on rough roads. These skates are in reality a pair of ordinary bicycle wheels, a stiff iron rod being dropped from the hub and skating shoes being attached firmly to the iron rod, the sole of the shoe coming within about 3 inches of the ground. With this arrangement of shoe and firm attachment to the hub the skater is as secure as on the ordinary roller skates, while with the pneumatic tire he can, of course, go over fairly rough ground with perfect comfort. It is a rapid method of ground-covering, but as the weight of the skater naturally falls within the point of contact between the tire and the ground, it requires some practice to use this form of roller skate successfully.

While in this country cotton goods are packed for account of the mill, deliverable at some distant city, in England they are delivered to the customer in the cloth room of the mill. A different packing concern will then send its men to the cloth room, at the expense of the purchaser, packing the merchandise according to the needs of any specified market. One of these concerns has a capital of $5,000,000, and several of them $1,000,000 each.

FOREIGN COMMERCE OF THE UNITED STATES.

IMPORTS INTO THE UNITED STATES IN 1913.

IN the form of a neat pamphlet of 48 pages the Department of Commerce has lately issued its annual review of the foreign commerce of the United States for the fiscal year 1913. Both imports and exports were the largest on record, the figures being respectively 1,813 million dollars against 1,654 million in 1912, and 2,466 million against 2,204 million in that year.

Compared with previous years the principal results are as follows:

IMPORTS—IN MILLIONS OF DOLLARS.

	Free.	Dutiable.	Total.	Percentage Free.
1880	208	460	668	31.19
1890	266	524	790	33.66
1900	367	483	850	43.21
1910	755	802	1,557	48.51
1913	988	825	1,813	54.47

FEATURES OF 1913 IMPORTS.

The year 1913 showed an increased percentage of goods entering free of duty, being 54.47 per cent., as compared with 31.19 per cent. in 1880, the average ad valorem rate of duty in 1913 having been 40.05 per cent., against 49.24 per cent. in 1900. An analysis of the returns shows for 1913 an aggregate import of manufacturers' raw materials of 635.2 million dollars, forming 35 per cent. of the total, as compared with 276.2 million in 1900, which represented 32.5 per cent. of the whole. Manufactures for further use in manufacturing, showing in 1900 imports of 134.2 million, or 15.8 per cent. of the total, had risen by 1913 to 349.4 million dollars, or 19.3 per cent.

While the fiscal year ending June 30, 1913, showed a proportion of free goods of 54.47 per cent., estimates for the later months of 1913 indicate that the percentage had risen to 61.36 per cent. for October, to 61.72 per cent. for November, and to 63.86 per cent. for December. The effects of the new tariff which went into effect on October 3, 1913, are plainly seen in these results.

RUBBER IMPORTS.

In the order of their present importance, the imports of the ten principal raw materials for use in manufacturing formed in 1913 about 575 million dollars out of a grand total of 635 million. The following condensed table shows in succinct form the history of those industries for practically the last half century, as regards importations of materials to this country for manufacturing purposes:

UNITED STATES IMPORTS—IN MILLIONS OF DOLLARS.

	1870.	1880.	1890.	1900.	1910.	1913.
Hides and skins	14.4	30.0	21.9	57.9	112.2	117.4
India rubber and substitutes	3.5	9.6	14.9	33.0	106.9	101.3
Raw silk	3.0	12.0	23.2	44.5	65.4	82.1
Copper ore, pigs, etc.	.2	1.0	.4	15.4	40.2	59.5
Tin in bars, blocks, etc.	2.0	6.2	7.0	19.1	30.9	53.1
Tobacco, leaf	2.5	4.9	17.6	13.3	27.8	35.9
Wool, raw	6.7	23.7	15.3	20.3	51.2	35.6
Cotton, raw	0.3	0.6	1.4	7.9	15.8	23.0
Wood	0.7	2.9	4.3	6.0	15.2	18.0
Fibers (unmanufactured)	6.0	9.4	20.5	26.4	32.4	49.1
Total	39.3	100.3	126.5	243.8	498.0	575.0

India rubber and substitutes thus ranked second in order of value. Of the 101 million dollars' worth of rubber and substitutes imported in 1913, about 90 million was in crude rubber, about half of which came from Europe, and the balance direct from tropical sources.

South American contributions to the imports of the United States include in 1913 in crude rubber: Brazil, 26 million; Ecuador and Colombia, half a million; Peru, half a million, and Venezuela, half a million, including balata.

FEATURES OF UNITED STATES EXPORT STATISTICS.

While imports have risen since 1880 from 668 million dollars to 1,813 million, the gain in exports during that period has been on a scale of about equal importance—from 836 million to 2,466 million, as shown by annexed table.

UNITED STATES EXPORTS—IN MILLIONS OF DOLLARS.

	Domestic Goods.	Foreign Goods, Re-exported.	Total.
1880	824	12	836
1890	845	13	858
1900	1,371	23	1,394
1910	1,710	35	1,745
1913	2,429	37	2,466

The principal features of the statistics covering these 33 years are the increase in exports of domestic products and the steady decrease in the export of foodstuffs. In 1880 foodstuffs represented 55.77 per cent. of the total exports, and in 1913 only 20.72 per cent., while manufacturers' crude materials rose from 28.98 per cent. in 1880, to 30.13 per cent. in 1913. Manufactures (exclusive of foodstuffs) show, however, an increase from 14.78 per cent. in 1880 to 48.80 per cent. in 1913. The growth shown by manufactures for further use in manufacturing (from 29 million in 1880 to 409 million in 1913) has been more striking both as to total and percentage than has been the case with finished manufactures.

The transition of the United States from an exporter of natural products to one of manufactures has been a steady movement during the last third of a century.

WIDER DISTRIBUTION OF EXPORTS.

The above-named development of export trade has been accompanied by a wider distribution of American products, indicating the growth of direct relations with countries of consumption, as shown in the following table:

DISTRIBUTION OF EXPORTS.

	1880. Per Cent.	1913. Per Cent.
Europe	86.1	60
North America	8.3	25
South America	2.8	5.9
Asia	1.4	4.7
Oceania	0.8	3.2
Africa	0.6	1.2
Total	100	100

EXPORTS OF RUBBER MANUFACTURES.

As shown in detail in the May issue (page 412) exports of rubber manufactures were in the fiscal year 1900-1901, $3,017,268; in 1904-1905, $4,780,817, and in 1912-1913, $12,511,548.

THE SULPHUR OUTPUT OF 1913.

Sulphur to the extent of 311,590 long tons and valued at $5,479,849 was produced in the United States in 1913, an increase of 8,118 long tons over the production of 1912, with an increased value of $223,429. This was produced in Louisiana, Texas and Wyoming and was the largest yearly output in the history of the United States, whose production is rapidly gaining on that of Sicily, the leading field for sulphur production in the world, whose output for 1913 amounted to 346,213 long tons. The production of sulphuric acid in the United States in 1913 was 3,538,890 short tons of 50 degree acid, valued at $22,366,482, an increase of 622,980 short tons over that of 1912.

The Editor's Book Table.

PLANTING IN UGANDA—COFFEE, PARA RUBBER, COCOA. BY E. Brown, F.L.S., and H. H. Hunter, LL.D. London, 1913. Longmans, Green & Co. [Cloth, 8vo, 176 pages. Price 10*s.* 6*d.* net. Foreign postage, 8*d.*]

INTO this interesting volume has been condensed all that requires to be known about Uganda and its three chief products: coffee, Pará rubber and cocoa. Uganda, it may be recalled, is a protectorate in British East Africa, in the heart of the continent, bordering on German East Africa on the south and the Belgian Congo on the west. Its southern portion is traversed by the equator and it chiefly lies between 30 and 35 degrees of longitude, east from Greenwich. Uganda has an area of about 117,681 square miles (being somewhat larger than Arizona). The population is estimated to exceed 3 millions.

The authors of this work have had special advantages for its compilation, Mr. Brown having been manager of the Kivuvu (Uganda) Rubber Co., Limited, while Mr. Hunter was director of that and other Uganda companies.

While other parts of the protectorate doubtless possess equal natural advantages, they have not been opened up; planters having been attracted to the Uganda Province (or Buganda), and the Central Province (or Busoga), lying along the northern and northwestern shores of Lake Victoria Nyanza, on a plateau about four thousand feet above sea level.

The introduction, by Professor Dunstan, C.M.G., of the Imperial Institute, while likewise dealing with the other products

HERRING-BONE TAPPING TO 6 FEET, BOTANIC GARDENS, ENTEBBE.

of Uganda agriculture, emphasizes the practical experience of the authors in the cultivation in Uganda of Pará rubber (*Hevea brasiliensis*); the work being intended as a guide to planters attracted by the natural advantages of the protectorate, as well as by its prospective increased facilities. Unqualified success has so far attended the introduction of the *Hevea;* the trees having furnished a satisfactory yield of rubber of good quality; it being predicted that *Hevea Brasiliensis* will supersede *Funtumia elastica,* becoming the chief, if not the only variety of rubber exported from Uganda.

PARA RUBBER TREES 4 YEARS OLD, BOTANIC GARDENS, ENTEBBE.

In the text of the volume data are given as to the history of rubber cultivation in Uganda, from which it appears that it was first introduced through a single tree, received from Kew in 1901, which by 1904 had attained the height of 21 feet. Early in 1904 one thousand seeds were imported from Ceylon, from which about 300 plants were obtained; the latter being planted out in the gardens at Entebbe, and affording in 1911 a basis for conclusions as to growth and yield. Trees from seeds planted early in 1904 had attained by 1909 a height of 33 feet, with a girth of 15½ feet. These figures are considered to show that the tappable size of 16 inches girth 3 feet from the ground, is reached in Uganda in five years. The average girth of the whole field in 1912 was 22½ inches. The accompanying illustration shows the growth of Pará rubber at 4 years at the Entebbe gardens.

The details of cultivation are dealt with, covering the choice of land for plantations, cleaning and planting, weeds, weeding and upkeep.

The collection and preparation of Pará rubber and other products are then taken up, with special reference to tapping; details are likewise given regarding the erection and arrangement of

PARA RUBBER TREES 4 YEARS OLD, KIVUVU.

factory buildings, as well as curing and drying appliances.

The yield obtained at Entebbe from 164 trees tapped 41 times over a period of three months in 1912, was 13 ounces of dry rubber per tree from trees presumably 8 years old. A series of interesting chapters covers the subject of estate management and costs, while the section of diseases is dealt with comprehensively by Mr. G. Massee, F.L.S.

This work is a valuable contribution to rubber literature, particularly as regards Central Africa.

As showing the manner in which coffee is interplanted with rubber, the illustration here reproduced, of coffee in flower between Pará rubber at Kiyuvu, will be found of interest. The text is amplified by about 40 illustrations and two well executed maps.

ANNUAIRE UNIVERSEL DU CAOUTchouc et de la Gutta Percha. Paris, 1913. Le Caoutchouc et la Gutta Percha. [8vo, paper, 212 pages.]

THIS handy little volume has appeared in its accustomed form and contains a classified index of the rubber trade in all countries. Its divisions are in the first place into articles and in the second into countries, under which the various names are alphabetically arranged. A large number of recipes for compounds are included in the contents.

STATISTICS OF A FEW RUBBER COMPANIES. COMPILED BY J. G. Morison. London, 1914. Edwards & Smith. [Boards, 120 leaves.]

WHAT is the prospective dividend on an investment in rubber shares, is a question which naturally suggests itself to the intending investor. Prices of the raw material being subject to fluctuations, such changes must necessarily be provided for in any attempt to forecast results.

This need has been met in the handy calculations of Mr. Morison, showing the profits to be anticipated from the sale of rubber at respectively 1s. 8d. (40.54 cents), 2s. (48.65 cents) and 3s. (72.98 cents) per pound. The two other factors to be taken into account are the production and the rate to be credited to capital, necessarily varying in each case.

The idea is to furnish investors with a pocket guide to the value of rubber shares, and this has been accomplished in the booklet—13 x 3 inches in size—compiled by Mr. Morison.

REPORT OF THE COMMISSIONER OF EDUCATION FOR THE year ending June 30, 1913. Washington, 1914. [Cloth, 932 pages.]

IN this comprehensive volume, the subject of education is first treated under the various heads of Kindergarten progress, rural, agricultural and commercial training. The question of industrial and vocational education is then taken up, with special reference to the recent Grand Rapids Convention of the National Society for the Promotion of Industrial Education. This society is conducting, personally and by correspondence, a propaganda of far-reaching influence, acting in harmony with the various Chambers of Commerce.

Not only with conditions in the United States does this valuable report deal, but special sections are devoted to Mexico, Central America, Panama and South America. Crossing the ocean, the reader is taken to Great Britain, Scandinavia and the other countries of Europe, Asia and Africa. Finally, events of international interest are briefly reviewed, including approaching expositions in America and Europe.

The Chemistry of Rubber, by B. D. Porritt, B.SC., published by Gurney & Jackson, of London, was reviewed in considerable detail in the March number of THE INDIA RUBBER WORLD. The D. Van Nostrand Co., of 25 Park Place, New York, is the American agent for this book, the price of which is 75 cents.

COFFEE IN FLOWER, BETWEEN PARA RUBBER TREES, KIVUVU.

NEW TRADE PUBLICATIONS.

THE Portage Rubber Co., of Akron, Ohio, has recently issued a small catalog, pocket size, of its rubber accessories, for automobiles. This describes and illustrates hook-on tire boots, lace-on tire boots, blow-out patches, inside tire plasters, and the tread gum, cement and other repair materials manufactured by the company. A page is devoted to a list of the company's distributing points, which are well scattered over the country, reaching from New York to various points in Texas and California.

"Unbiased Information" is the title of a ten-page folder just issued by the Lee Tire & Rubber Co., of Conshohocken, Pennsylvania, for distribution to tire users. Its aim is to suggest some things that will pave the way for satisfactory adjustments between the user and tire manufacturer. It suggests, in the first place, the advisability of buying a good tire, paying enough to get a good tire and taking care of it; then, if for any reason the tire fails to give the service it should and you go back for adjustment, state the facts. These sensible suggestions are followed by three pages of instructions in the care of tires, which included numerous "Don'ts" and a few "Dos." Two pages are devoted to illustration and description of the Lee Puncture-proof tire, which the company guarantees to give 3,500 miles of service without puncture, standing ready in case of its failure to give this service to refund the amount paid for such a tire in excess of the price of the regular Lee tire of the same size, and also to repair the puncture free of charge.

The latest catalog of the Racine Rubber Co., of Racine, Wisconsin, contains in its 29 pages a full description of the company's product. Commencing with a photograph of the factory and the story of its organization, equipment, etc., it first calls attention to the tire product, for which the company has adopted the slogan, "Every Tire a Good Tire." Three styles of casings are made by this company—Clincher, Quick Detachable Clincher and Straight Side—and numerous treads, in sizes to fit all rims. Tables of inflation and size of tire for different weight cars are given, also a list of the company's distributing agencies, of which there are 37 in the United States, scattered through 15 states. Five pages are devoted to accessories, which include all the usual repair requirements, and one page to guarantee.

There are eighteen bulletins in the series issued by the publicity department of the Goodyear Tire & Rubber Co., of Akron, in its campaign in the interest of tire conservation. Bulletin No. 1 is devoted to instructions on the care of tires, the other seventeen being descriptive of the various causes which result in damage and ruin, with illustrations of treads and tubes so destroyed. Twelve of the bulletins relate to casings. They tell the story of neglected cuts, fabric breaks and mud boils; of scraped treads, due to sudden stops, quick starts and skidding; of worn treads, chafed sides and ruin by car tracks, by chains, by oil, by snags, by unsuitable storage and rim cuts. The remaining five bulletins cover pretty thoroughly the accidents that may occur to inner tubes, as under-inflation, stretched tube—due to lack of talc, ruin by rusted rims and by carrying uncovered.

Under the title of "Rules of the Road and Saving Hints to 'The Man Behind the Wheel'" the B. F. Goodrich Co., of Akron, has issued a book 3½ x 6 inches in size and containing 48 pages of valuable information. Chapter 1 of this volume gives the rules of the road governing street traffic—passing, turning, stopping, standing and starting—and later chapters give similar regulations regarding signals, right of way, speed, respective rights of drivers and pedestrians and the duty of each, lights, etc. It contains an interesting chapter on accidents, while pages 19 to 38, inclusive, cover the care and repair of tires. It gives a list of the route books obtainable without charge from the Goodrich touring bureau, also a short story of the growth of the company and a list of its wholesale stock depots, and of dealers handling its products in the United States and abroad.

The June calendar in the monthly series being sent out by W. G. Brown & Co., dealers in crude and reclaimed rubber, of Cincinnati, Ohio, is not only most attractive but especially appropriate to the vacation season. It pictures a fishing scene, where the vacationist is having an interesting and exciting time endeavoring to land a particularly game muskellunge, which, though hooked, strenuously objects to being taken in; while the guide is an intent spectator of the unequal struggle.

Mr. Arthur Dyer, broker, of the Produce Exchange, New York, gets back to original principles. The name rubber, it will be recalled, was derived from the fact that the first use in a civilized country of the product of the *Hevea* tree was for the erasure of pencil marks. As it rubbed out the mark it was called "rubber." Mr. Dyer has sent some of his friends and customers a little block of red rubber intended for erasing purposes. On one side it is marked with his name and address, and on the other with the products in which he deals.

A REAL RUBBER ANNOUNCEMENT.

It will be recalled that one of Mr. Goodyear's early exploits was the publication of the story of his success in rubber manufacture in a book made entirely of rubber. The Dryden Rubber Co., of Chicago, Illinois, has followed Mr. Goodyear's plan. It has recently sent an announcement to the trade in the form of a rubber sole 6 inches long, on which is inscribed in raised letters the following: "We announce for the coming season our superior line of rubber soles and heels, which thoroughly merit your consideration."

If the company were to get these announcement soles out in rights and lefts, mothers of young children would be around gathering them up so that they could equip their offspring with non-skid rubber soles with no expense except a few drops of cement.

THE FIRESTONE "TOP O' THE WORLD" BANNER.

The Firestone Tire & Rubber Co., of Akron, Ohio, has distributed copies of a showy lithographed banner to some 35,000 dealers. The banner is about 20 x 40 inches, printed in eight or ten colors—orange, yellow and blue predominating—and shows one of their non-skid tires traveling over the surface of the earth and leaving a non-skid impress—apparently about a thousand miles wide—across the continent of North America. It is a striking advertisement.

LA REVISTA DEL ATENEO HISPANO AMERICANO (REVIEW OF THE SPANISH AMERICAN ATHENEUM).

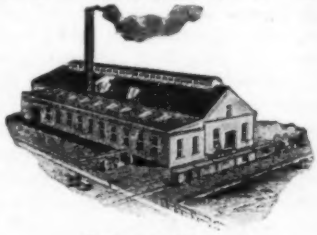
In the first number of this review—published in Washington—a variety of interesting articles deal with questions of historical, literary and political interest. The issue opens with a paper by Hon. Francisco Javier Yanes, president of the Atheneum, well known as the Assistant Director of the Pan-American Union. Since the creation of the Atheneum, somewhat more than a year ago, it has reached an active membership exceeding two hundred and fifty. The review has a twofold object. On the one hand, it aims to keep alive interest in the study of Spanish; while on the other, it is intended to form a link between the United States and the former Spanish colonies in America and the Pacific.

Other features include papers by the Spanish Ambassador; Hon. Robert Bacon; Right Rev. Dr. Charles Currier, Bishop of Matanzas; Professor Patrick J. Lennox; H. W. Van Dyke, and others.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

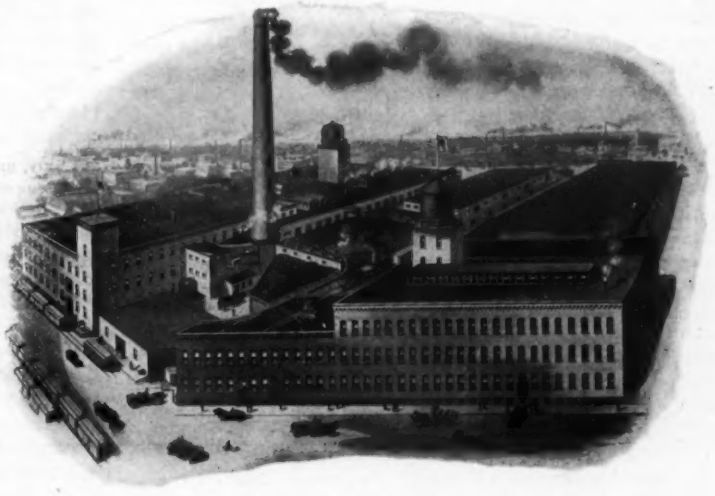
THIRTY YEARS OF SUCCESS.

PROBABLY a good many well informed men in the rubber trade would have said that the rubber reclaiming business in this country did not date back more than 15 or 20 years, but they would discover their error were they to look over the handsome little book entitled "Thirty Years of Success," recently issued by the United States Rubber Reclaiming Co., whose executive offices are in New York, but whose plant is in Buffalo. This company has been in existence thirty years, and among



ORIGINAL PLANT.

the very interesting illustrations in its handsome booklet are two factory reproductions, one showing its original factory with a capacity of 1½ tons per day and employing 15 workmen, and the other showing its present plant covering an area of 4¼ acres, employing 600 workmen and having a daily capacity of 64 tons. There is a good deal of interesting information in this book about the reclaiming industry, as, for instance, the statement that last year's consumption of reclaimed rubber amounted to 160,000 tons—which is about 60,000 tons in excess of the production of new rubber for the year.



PRESENT PLANT.

The book consists of 16 large pages and a handsome embossed cover, and contains a number of halftone cuts showing various phases of the company's work.

LABORATORY
Completely equipped for quick and thorough experimental tests, both chemical and physical.

PILE OF SHOES IN YARD
Showing part of a stock of 5,000 tons of old rubber boots and shoes, shed from nearly 10,000,000 feet.

STOREROOM FOR SCRAP TIRES
Where the inner tubes go after they have had all the blow-outs they can stand.

DEVULCANIZERS
Showing three of these great retorts, each with a capacity of 40,000 pounds.

DRYING ROOM FOR TIRE STOCK.
Showing the material practically finished, except that it must be refined and sheeted.

MILL ROOM
Where the material is run through rollers and sheeted for shipment.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

REPORTS are still somewhat at variance regarding the state of business, but I find that there is a decidedly more hopeful feeling all along the line. For instance, the automobile business, as is the rule with trades devoted to luxuries, hasn't been up to the average this year, and the argument is that more old cars are in use and these old cars require more frequent renewals of tires, therefore the tire business gets the benefit. A trip along Boylston street and out Brookline way finds most of the Boston managers of tire stores quite enthusiastic over present and prospective trade.

* * *

Take the rubber sole business. The leather situation has been such that shoe manufacturers were glad of the growing fad of using rubber instead of sole-leather. Therefore every—or nearly every—manufacturer whose equipment would enable him to turn out rubber soles is doing a good business. There are all qualities of these goods, and shoe men can buy soles at most any price, with too many poor, cheap soles in the market, which, because of their poor service, will fail to give satisfaction; and if this state of affairs becomes too prevalent, good-by to the rubber sole shoe fad. Only good soles should be used, but there's always a demand for cheapness. Then, there's the raincoat trade. A man whose father was a pioneer in the rubber clothing business, and who succeeded him, states that the change in the tariff has made serious inroads in the raincoat business. English and German manufacturers can now compete with American makers, and consumers, all other things being equal, are likely to prefer coats of European make if they can be had at about the same price as the domestic product. This makes business poor in all except the cheaper grades. However, another manufacturer of fine quality raincoats reports a good demand for his standard lines, which are among the most expensive made in this country.

* * *

When it comes to mechanicals, there is the same disposition on the part of mills and power plants not to stock up with emergency supplies of beltings and packings but to rely on local houses or on quick express service. It is about the same with fire hose. But in garden hose there was a good demand in advance of the retail season, and this is being continued by supplementary orders from many sections where the rain-fall is below normal.

* * *

Those factories which make fruit-jar rings report plenty of orders despite the good business which they did some months ago. Indeed, one factory keeps a force of workers busy almost the entire year in this department.

* * *

The Alden Rubber Co. was incorporated last month with a capital stock of $100,000, of which $50,000 is preferred stock and the remainder common stock. This company succeeds the Hoyt Rubber Co., and will continue the business of that concern at 58 Thayer street. At its head, as president, is G. Edwin Alden, who is known to the entire rubber trade. C. W. Hoyt, the secretary of the new corporation, has been owner and manager of the Hoyt Rubber Co. for the past twelve years. The secretary is B. E. Phillips, who was also connected with the Hoyt company. The Alden Rubber Co. is already manufacturing a large line of molded rubber goods, and among its specialties will be soles and heels, sponges, tubing, etc., besides which it will carry on a department devoted to experimental work.

* * *

Mr. G. Edwin Alden continues to represent, as its New England agent, the Standard Asphalt & Rubber Co., of Chicago and New York, proprietors of M. R. X., the celebrated compounding ingredient so extensively used in the rubber industry, and still retains his office at 10 High street, where he established this agency several months ago. The merits of this substance are certainly appreciated by rubber manufacturers in New England, if one may judge by its steadily increased demand.

* * *

As already stated, the manufacture of substitutes for leather increases with the high cost of the latter article and the boom in popularity of rubber soled footwear. A new competitor in the leather-rubber sole business is the Vulcan Fibre Co., organized recently, with a factory in Andover, Massachusetts, and a salesroom and office in the heart of Boston's shoe district. This company has for its president, Everett B. Cook, of Danvers, and the other directors are E. W. McCarthy, a prominent resident of Peabody, and A. W. Baker, a shoe manufacturer of Georgetown. The company takes sole leather remnants, which are shredded, mixed with rubber, gum and vulcanizing materials and rolled out to proper thickness. After vulcanization, soles are dried out, constituting the principal product of the company.

These soles are claimed to wear longer than either leather or rubber soles, are non-slipable, damp-proof, will not crack either in wear or in the sewing on by machine; and the company shows important economies to the manufacturer over leather or rubber soles. Already a good business is reported by the company.

* * *

I understand that there will be a change in the management of the Danversport Rubber Co. at the annual business meeting in July. This company, which was organized in 1893, has been an important reclaimer of rubber. The principal owner, W. J. Corbett, died in September, 1909, and the business has since been managed by J. C. Walton, the original Clerk of the company. During the years of his administration he has steadily improved the plant, adding to the business of the company and increasing its profits. Mr. Walton will, however, retire from the management of the company, but is not yet ready to give out any information as to his future plans.

* * *

Robert C. Harlow, president of the Monatiquot Rubber Co., is at present writing on a fishing trip at the Rangeley Lakes.

THE RUBBER TRADE IN AKRON.

By our Regular Correspondent.

THE Miller Rubber Co. plant is to be materially enlarged by the erection of a warehouse and other buildings. Plans for the extension are being worked on now.

The announcement of the additions was made Saturday morning by the company, and at the same time it was announced that the ground formerly owned by the Franz Body Works, an auto body manufacturing concern, immediately across from the Miller company, has been purchased. Modern factory buildings will be erected on this ground after old structures covering about half a block are removed. No estimate of what the extensions will cost can be made yet, say the officials, as the plans are not prepared.

* * *

The Williams Foundry & Machine Co., under its profit-sharing plan—now in its third year—recently distributed among 125 employes—superintendents, foremen and workmen—seventeen hundred dollars, as follows: To workmen, a thousand dollars, according to length of service, and five hundred dollars according to number of hours worked; two hundred dollars to superintendents and foremen.

* * *

The B. F. Goodrich Co., at the meeting of the National Association of Engineers of Ohio, made a special exhibit of the Graham-White King hose, which is used for high pressure in fire protection. This is meeting with a great demand, and is becoming one of the leading hose sellers of the Goodrich company.

Operations at the factory of the B. F. Goodrich Co. are now at a maximum, as is always the case during the automobiling season, when most cars are in use. At the present rate of production—10,000 tires a day—continued for a year, the output would exceed the aim of the company, which is 2,000,000 tires a year, but this rate of course will not be kept up. The entire mechanical department is also running at full capacity, and the daily production is said to include about 17 miles of rubber hose and 7 miles of belting.

The White Anchor Relief Association of the B. F. Goodrich Co. will probably be united with the Diamond Relief Association, which is connected with the Diamond branch of the Goodrich plant.

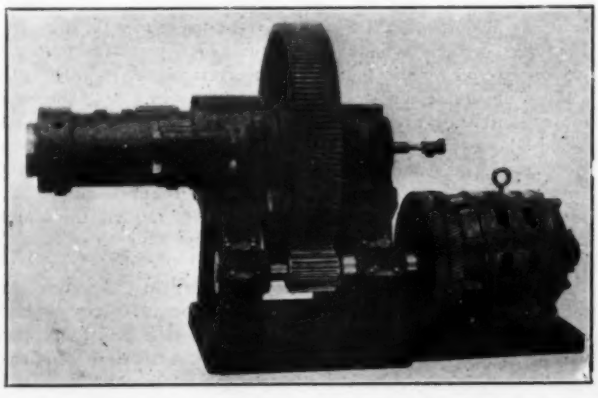
* * *

The Goodyear Tire & Rubber Co. is making continuous experiments with various balloon fabrics. This company has installed a new large press in its belting department. The capacity of this department is about twenty thousand feet per day. The demand for balata belting is heavy.

A motorcycle trip around the globe, having as its purpose the furthering of the interests of the negro race, has been planned by J. H. Cooper, of Akron. This trip will include London, Paris, Berlin, Rome, Cairo, Africa, South America and Australia, and every part of the outfit required has been selected with extreme care. Goodyear tires and tubes form a part of the equipment.

* * *

The machine here illustrated is the Adamson straining or refining machine. It is designed with special drive in order to bring the machine as closely to the floor as possible, and avoids the necessity of a pit; and being motor driven a self-contained unit may be placed at any convenient location without special



ADAMSON'S STRAINING OR REFINING MACHINE.

foundations. These machines, which are built in a variety of sizes, and equipped with the most approved and substantial bearings, have come to be standard among rubber reclaimers. The Adamson Machine Co., engineers, designers and builders, are the manufacturers.

* * *

Students taking the factory co-operative engineering course in the University of Akron instead of getting a summer vacation are to commence work July 1 in the rubber and other factories of the city. They will spend two weeks alternately in the factory and class-room, and are to receive pay for their work.

* * *

The Quality Tire & Rubber Co., capitalized at $150,000, organized under the Ohio laws for manufacturing automobile tires and tubes, is equipping a new plant at Hartville, Ohio, located on the Wheeling & Lake Erie Railroad, about twelve miles north of Canton. The officers of the company are: F. A. Schumacher, Hartville, Ohio, president; C. F. Munk, Louisville, Ohio, vice-president; E. D. Smith, Akron, secretary and treasurer; E. E. Smith, Akron, general manager; E. H. Trump, Akron, general superintendent.

* * *

The Star Rubber Co. has recently increased its capitalization from $250,000 to $350,000.

* * *

The National Association of Stationary Engineers held its state convention in Akron, June 17, 18 and 19. Various papers were read and discussed. The delegates made an inspection of Goodrich and Goodyear plants, and the N. O. T. Gorge power house and dam. Various rubber companies exhibited a full line of mechanical goods. The following were among the exhibitors: H. W. Johns-Manville Co., Home Rubber Co., The B. F. Goodrich Co. and Goodyear Tire & Rubber Co.

* * *

The Portage Rubber Co. is increasing greatly its line of mechanical goods, and also adding a large number of employes.

* * *

Mr. F. E. Holcomb, manager of the Kelly-Springfield plant in Akron, is confined to his home with inflammatory rheumatism. This company expects to occupy its Akron office some time in July.

* * *

Mr. Anthon Berg, expert on balata belting and asbestos packing, left for his home in Norway on June 30.

* * *

In a fire that destroyed the Government Powder House at Panama City on the night of June 5 the automobile of the fire chief of that city, which had been left standing about 150 feet from the powder house, was completely destroyed, one of the front wheels being blown free from the car. This was later found more than 100 feet distant, and, to the amazement of everyone, the tire—a Firestone Non-Skid—was absolutely uninjured. Mr. Arosemena, the fire chief, is said to have expressed himself as quite satisfied with this test.

THE GROWING POPULARITY OF TIRE HOSPITALS.

By Our Cincinnati Correspondent.

THE "tire hospitals" which are growing very rapidly in number—at least through the Middle West—have given a great impetus to the high grade tire trade. Formerly many auto owners were disposed to adhere to the cheaper grade of tires, on the

THE INNER TUBE NEEDS REPAIRS.

theory that it didn't make very much difference what the tire cost it was bound to get stone-bruised and the more expensive

the tire the greater the loss. If they wanted to have the tire repaired they had to resort to the country blacksmith, who tinkered up autos. as a sort of side line and graded his charges for this sort of work by the tourist's general appearance of financial prosperity.

But now the tire hospitals have taken over all this sort of work and do it on a regular schedule of prices, so that the autoist

REMOVING THE TIRE.

has learned just what he ought to pay for a certain repair; and the prices being reasonable and fairly standard, he has been encouraged to invest in better tires than was formerly the case, knowing that it is worth while having them repaired in case of accident.

All sorts of tires come in to these hospitals, from the very cheap to the most expensive. The proprietors of these repair shops say that as between non-skid and plain tires they find the non-skid variety gives a little more service, as a rule, but not a great deal more service, many of the plain tires, if properly cared for, being good for 3,500 miles, and even more. The prime source of trouble is the stone bruise, which results in a blow-out. For this sort of repair the Middle West hospitals charge from $3 to $5.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

THE Luzerne Rubber Co., whose main offices and works are located in this city, is increasing its plant by the erection of another factory building in addition to the one mentioned in the May number of THE INDIA RUBBER WORLD. Both of these extensions are 40 x 80 feet in area and two stories high, one being of brick and steel and the other of concrete and steel. The Luzerne company's production is confined entirely to hard rubber specialties—sheeting, rod, tubing, molded goods, battery jars, etc.,—and the additions now in progress will enable the company to increase its output by about fifty per cent.

* * *

The A. C. Squires Rubber Co. has been incorporated under the laws of this state with a capital stock of $150,000, to manufacture a line of tire inner tubes, reliners and other repair goods, as well as dress shields, dental rubbers, bathing caps and calendered fabrics. The officers are: William F. Woodill, president; Edward A. Bohn, vice-president; Charles F. Bohn, secretary, and Arthur C. Squires, treasurer and general manager. Mr. Squires of this company is authority for the statement that a complete plant will be equipped with new rubber working machinery. The office is at Keyport, where, I understand, it is also proposed to establish the factory.

* * *

The Buckeye Rubber Co. has withdrawn its charter from this state.

* * *

Preparations are being made for a safe and sane Fourth of July celebration in Trenton this year which will surpass that of a year ago. General C. Edward Murray, of the Empire Rubber Co., has shown great interest in these celebrations, contributing financially to their success beside donating most of the necessary apparatus. General Murray was recently nominated a director of the Philadelphia Reserve Bank.

* * *

Frank W. Thropp, secretary of the John E. Thropp's Sons Co., manufacturers of rubber mill machinery, has recently returned from a two months' tour of Europe. Mr. Thropp is a member of the Board of the Gethsemane Baptist Church of this city, and a delegation from that church, which included the pastor, the Reverend Cuthbert P. Newton, met him upon his arrival at the pier in New York. The Men's League of the church also tendered him a reception, held in the church parlors, which had been decorated for the occasion. This celebration was attended by about eighty of Mr. Thropp's friends and included, beside addresses of welcome, an excellent musical program.

* * *

August W. Busch, for more than twenty-five years an employe of the John A. Roebling Sons' Co., of this city, died June 2, at his home in Chambersburg. He was fifty-seven years old and is survived by his wife and three daughters.

THE RUBBER TRADE IN CHICAGO.

By Our Regular Correspondent.

FOR the most part the local rubber trade in all branches has been satisfactory during the past month, though there seems to be a hand to mouth tendency on the part of buyers, caused by the generally uncertain business situation.

Most of the repair work has been done in the grain elevators, and they are now waiting to receive what promises to be one of the most abundant harvests in many years. More than the usual amount of rubber belting was sold to these concerns during the year by local rubber companies, but most of the shipments have been made, and salesmen are already working for next year's business.

* * *

Never before was there so much building in Chicago as at the present time. Dozens of new skyscrapers are being erected in the loop district, and this means contracts for various forms of rubber goods. The fire protection requirements in this city include a single pipe running from the cellar to the roof of the building, to which a rubber hose of certain length, with a nozzle, is attached on each floor, for instant use in case of fire. The custom is to let the contract for the required hose to some local mechanical rubber firm. In addition, many of the big new buildings use rubber tile, which is supplied in many attractive designs and colors by local rubber firms.

* * *

One of the most disastrous strikes which ever disturbed the rubber business in this city was that of the brickmakers, which has just been concluded. While only about 2,000 brickmakers were themselves out on strike, the brick famine resulted in the enforced idleness of more than 150,000 men and completely tied up a dozen different occupations. In the end a settlement was reached, the strikers returning to work at only a few dollars a year advance over their previous scale of wages.

* * *

In banking circles the feature of the month was the failure of the La Salle Street Trust and Savings Bank and five sub-

sidiary banks located in various parts of the city. The result of this failure has been to make money tight in banking circles, owing to the loss of confidence on the part of depositors. Loans are hard to secure unless the best of collateral is produced, and there has been a noticeable slowing down in financial operations of all sorts.

* * *

Four hundred advocates of good roads, including a number of tire men, met last week at the Hotel La Salle to attend the annual convention and dinner of the Illinois Highway Improvement Association. Governor Dunne was present and talked on the good roads question. He outlined the principles in the Tice law, under which more than $2,000,000 will be spent in this state for good roads during the coming year, also outlining the law under which state convicts work, on the "honor" system at Camp Hope, near Dixon, Illinois.

* * *

The Fiberoid Rubber Co., has completed some new designs in stair treads, mattings and perforated mats which look like winners. The factory has been remodeled for the summer, the offices newly decorated and in the work room several new machines have been installed.

* * *

Many of the local rubber men are either taking their vacations at the present time or are planning on vacations soon to be taken. Most of them go to one of the northern lakes for a few weeks' fishing and hunting. Plans are being made for a picnic to be held at some resort near the city. Every rubber man who owns an automobile will take as many other rubber men as he can carry. The procession will leave the city Saturday noon and will remain at the resort until late Sunday evening, when the return trip will be made by the light of the moon—or without the light of the moon if that orb is obscured. While no definite date has been set, the picnic will take place in the near future. There being no local association of rubber men, it is believed that frequent outings of this kind held during the summer will do much to promote friendly trade feeling, which in this city is somewhat lacking, many of the rubber men not having personal acquaintance with their competitors.

* * *

William Redfield Perrin, president of William R. Perrin & Co., of Chicago, manufacturers of Vulcanizing presses and other special rubber mill machinery, died on June 2, after a short illness.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THERE is but a slight difference in the rubber business in this vicinity at the present time, as a whole, as compared with a month ago. Some manufacturers report increasing orders while others acknowledge a slight falling off. The former are largely concerns that make tires and similar goods, while the latter are manufacturers of footwear—with the possible exception of tennis shoes. The recent fire at the plant of the Bourn Rubber Co. in this city the last of May, threw a number of employes out of work. Arrangements are being perfected for a resumption at an early date.

At the present time there is a shut-down at the Alice rubber shoe mill of the Woonsocket Rubber Co. at Woonsocket, affecting about 1,500 hands, and at the Millville rubber boot mill of the same concern at Millville, where about 800 hands are employed. The notices posted early in the month at the Alice mill read as follows: "Vacation shut-down. Last day's making, Saturday, June 20. The date of starting will be posted later and advertised in the papers. During the shut-down it is planned to install five large magnetic safety clutches and make extensive alterations in the power plants, which will probably necessitate a shut-down of four weeks. Work will be rushed with all possible despatch, and should it require another week or so, due notice will be given."

* * *

The State tax upon corporations was certified to the General Treasurer on June 12 by the Rhode Island Board of Tax Commissioners and shows a considerable decrease from the assessment of a year ago, caused, it is stated, by general business conditions. The tax is payable July 1 and if not paid before July 15 is subject to an interest charge.

* * *

The Brown & Sharpe Manufacturing Co. remains the heaviest taxpayer among corporations taxed upon corporate excess, although the amount was reduced from $10,496,017.18 to $9,886,560. The National India Rubber Co., of Bristol, is taxed this year for $1,309,453.18, while a year ago it was $1,845,566.67. This is a decrease of $536,113.79. The Revere Rubber Co. of this city also shows a drop amounting to $336,450.75 in its excess. Last year its excess was $851,627.42, while this year it is but $515,176.67.

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Among the list of manufacturing, mercantile and miscellaneous corporations associated with the rubber industries having a corporate excess of $50,000 or more are the following: American Electrical Co., $859,619.16; American Multiple Fabric Co., $72,854.20; American Wringer Co., $1,109,940.90; Atlantic Tubing Co., $116,285; Joseph Banigan Rubber Co., $1,338,900; Bourn Rubber Co., $83,300; Brown & Sharpe Manufacturing Co., $9,866,560; Collyer Insulated Wire Co., $82,580; Davol Rubber Co., $131,688.83; Glendale Elastic Fabric Co., $142,337.57; Mechanical Fabric Co., $613,243.32; National India Rubber Co., $1,309,453.18; New England Butt Co., $183,580; New England Supply Co., $57,621.32; Nicholson File Co., $2,663,340.71; Phillips Insulated Wire Co., $1,437,561.29; Revere Rubber Co., $515,176.67; Standard Mill Supply Co., $53,072.72; Tubular Woven Fabric Co., $53,248.58; United States Mill Supply Co., $74,447.81; United Wire & Supply Co., $506,380; Washburn Wire Co., $762,061.91, and Woonsocket Rubber Co., $983,492.73.

* * *

Howard R. Gray, a graduate from the commercial department of the Colt High School at Bristol, has accepted a clerical position in the office of the National India Rubber Co. in that town.

At the factory of the National company, Assistant Superintendent James W. Franklin has been hiring makers, stitchers and learners for the tennis department. The shoe department is working full time and additional help is being put on. The wire department, however, has slackened so that it is only operating on a three-quarter time schedule.

Many friends of Mr. and Mrs. LeBaron C. Colt assembled at the Colt home on Smith street, Bristol, on Wednesday evening, June 10, to congratulate them upon the tenth anniversary of their marriage. There was a reception from 5 to 7 o'clock and Mr. and Mrs. Colt were the recipients of many handsome presents. Mrs. Colt was assisted at the reception by her children, Miss Jou Jou Colt and Masters Carlton and George A. C. Colt. A dinner was served and music was furnished during the evening. Guests were present from Bristol, Providence and Newport.

* * *

Terrence McCarthy, manager of the Consumers' Rubber Co., of Bristol, has invented an important improvement to the buckles used in the manufacture of rubber goods, particularly arctics, and with William N. Dunton has recently been granted a patent on the invention. The introduction of this new buckle will be of more than usual interest to rubber manufacturers, for this invention, which has to do with the

clasp, is a radical departure from previous designs. The new buckles can be used on clothing with equal advantage.

At a recent meeting of the stockholders of the Revere Rubber Co., held at the offices of the corporation in this city, it was voted to increase the capital stock from $4,000,000 to $5,000,000, and notice to that effect has been filed at the office of the Secretary of State for Rhode Island. This notification is signed by Elisha H. Williams, president, and W. H. Gleason, secretary. Under the new capitalization the corporation will have $3,000,000 preferred and $2,000,000 common stock, the increased capital being in the former, which previous to the vote of the stockholders was only $2,000,000. The new issue will therefore be $1,000,000 preferred.

Three tire manufacturers from Hanover, Germany, in this country on a general inspection tour of tire plants, recently visited the factory of the Revere Rubber Co. in this city, and made a complete inspection of the plant. They were the guests of General Manager Harlow Waite.

* * *

Col. Samuel P. Colt, of Bristol, president of the United States Rubber Co., left on Memorial Day for his annual June trip to Camp Colt, at the foot of Mount Katahdin in Maine, accompanied as usual by several guests. In the party were Mr. and Mrs. Edwin A. Barrows, Rev. George L. Locke, D.D., of Bristol; Dr. Calvin S. May, Miss Frances Winaus, Miss Samuels and Nathaniel Myers, of New York; Miss Ruth Anthony, of Boston; Miss Beatrice Colt, Mrs. William Beresford, Walter S. Ballou and Col. and Mrs. Harold J. Gross, of this city.

* * *

H. F. Bittaker & Co., 52 Aborn street, Providence, have recently taken the local agency for "Englebert Tyres" which are made in Belgium.

The local service and sales station for the Kelly tire, Ronald S. Longley, manager, has been removed to 357 Fountain street.

The Union Paint & Varnish Co., 51 Exchange place, this city, has taken the local agency for Tyrian tires, manufactured by the Tyer Rubber Co., of Andover, Massachusetts.

THE RUBBER TRADE ON THE PACIFIC COAST.

By Our Regular Correspondent.

A NEW company, to be known as the Stott-Strugnell Co., has been formed in San Francisco, with headquarters on Geary street near Polk, composed of Whitney Stott and H. W. Strugnell, both of whom are well known in the automobile industry of the coast. This company will act as Northern California distributors of Batavia tires, the product of the Batavia Rubber Co., of Batavia, New York.

* * *

B. H. Pratt, Pacific Coast manager of the Fisk Rubber Co., of Chicopee Falls, Massachusetts, in commenting recently on the number of automobile clubs, etc., planning trips to California during the progress of the Panama-Pacific Exposition and on the extent and growth of the automobile and associated industries generally, had some interesting things to say of the occupation of chauffeur which the automobile has created. Mr. Pratt states that far from being on the plane of the coachman of yesterday, the chauffeur of today is not a driver of a conveyance but a private engineer, and to be successful he must have a mechanical knowledge even in advance of the railroad engineer; must be equipped with a practical knowledge of tire construction and repairs; must be a student, keeping abreast of the times in automobile construction and interested in advancements to come; as well as sober, industrious and temperate. In fact, he states, "Instead of serving in a menial position, the professional chauffeur is following an occupation that is, and will be hereafter, considered most honorable."

One of the first big steamers to pass through the Panama Canal is to bring a full shipload of tires from the factory in Massachusetts to the Los Angeles branch of this concern, Mr. C. O. DuMars, branch manager, having been advised of the chartering of a vessel for that purpose. To give an idea of what a shipload of tires means it might be said that the number of casings in the cargo would fill ten freight cars, constituting a train load. These tires will come direct to the new city harbor at San Pedro, for distribution from Los Angeles to all the coast agencies of the Fisk company.

* * *

One company which has been seriously affected by the war in Mexico is the Savage Tire Co., of San Diego, most of whose crude rubber supplies and compounding chemicals are shipped to California from the east over the Tehuantepec National Railroad across Mexico to Salina Cruz and thence by steamer up the coast. The seizure by the Constitutionalists of one of the passes through which this railroad runs has closed this part of the road to freight traffic, making it necessary for the Savage company to have its supplies forwarded by a 48-day route leading through the Straits of Magellan.

* * *

The Pacific Rubber & Tire Manufacturing Co. has recently been organized in Seattle, Washington, with a capital stock of $25,000, all paid in, to manufacture automobile tires and tubes. The stockholders and trustees of the new concern are B. L. Gates, C. A. Kilbourne, H. C. Ewing, Judge Arthur B. Griffin and E. L. Webster. The site of the plant—which it is said will employ more than 150 men at the start and turn out 150 tires a day—has not been definitely decided upon, but it will probably be either on the west shore of Lake Washington or in the Duwamish River valley, both of which sections are under consideration. The expectations are that the erection of the factory will be completed by the time the machinery is ready for installation. This machinery, the manufacture of which will require four months' time, is said to have already been ordered.

This company will inaugurate the following rather unique selling plan: Gold certificates, profit-sharing and bearing interest, in denominations of $50 and $100, will be sold to customers—the $50 ones to those using the smaller size tires and the $100 variety to those using tires of the larger size—the holders of certificates being entitled to purchase tires at wholesale prices.

* * *

F. B. Kendall has been appointed manager of the Seattle branch of the Firestone Tire & Rubber Co.

* * *

The item which appeared in the June number of THE INDIA RUBBER WORLD, page 489, mentioning a new local sales branch in San Diego just opened by the B. F. Goodrich Co., was incorrect. The Goodrich concern has had a stock depot at this point for the past two years, which is still being operated and which the company intends to continue to operate as in the past.

* * *

An enterprising concern and one which is meeting with success is the Imperial Valley Trading Co., of which G. Charles Bullen is president and manager, and which operates a line of motor trucks between the fruit and vegetable growing districts of the Imperial Valley and San Diego. This trip is made in eleven hours, or about one-fifth the time required by horse-drawn vehicles, fruit picked in the afternoon being delivered in San Diego the next morning. The company now has 13 Moreland trucks in operation, has ordered two additional trucks and expects within a few months to have ten others engaged in the service. All the trucks so far in operation by this company are equipped with United States tires.

* * *

The Tire Shop, at Stockton, California, which commenced business in January of this year, as agents for Michelin and Diamond tires, is doing a very satisfactory business.

New Rubber Goods in the Market.

LATE STYLES IN BATHING CAPS AND ACCESSORIES.

EACH succeeding summer brings with it new styles in bathing caps, which as a rule follow as closely as possible the prevailing modes in millinery; but the array of styles and colorings available to the bathers of this particular season is even

From Franklin Simon & Co.

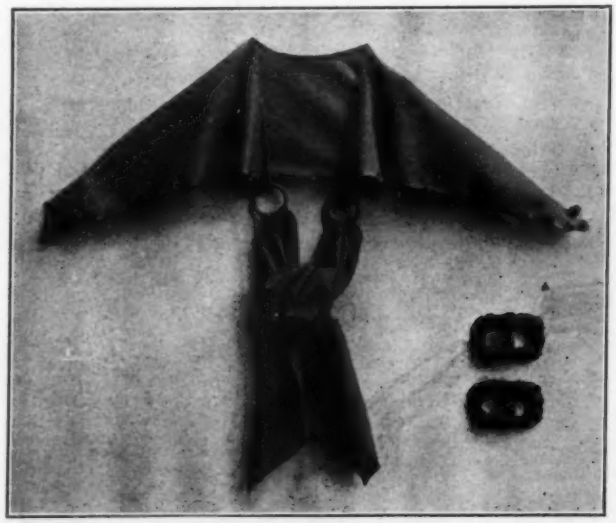
BATHING CAPS TRIMMED WITH RUBBER ROSES AND ROSETTES.

larger than usual, and includes bonnets, caps and hats in endless variety and in all the most desired shades, made of rubber, as

From Franklin Simon & Co.

RUBBERIZED SILK TURBAN AND BRIGHT-HUED ALL RUBBER CAP.

well as of rubberized satin, etc., and adorned with berries, fruit, leaves, flowers and ribbon—all of rubber or rubberized to stand



From Saks & Co. Photo by Joel Feder.

ALL-RUBBER SAILOR COLLAR AND RUBBER BUCKLES.

any amount of wetting in either salt or fresh water. Four especially attractive models are here illustrated. The first is an all-rubber cap, which can be obtained in blue, cerise or emerald green, with the rubber rose at the side in contrasting color. The second model, with rosette trimming, is of the "Castle" type and comes in black and navy blue. The third model is a rubberized silk turban and is made in black, navy blue and purple, with the wired donkey ears of the same material as the cap. The last of the four is an all-rubber cap, decorated with velvety rubber flowers and obtainable in blue, cerise, coral and purple.

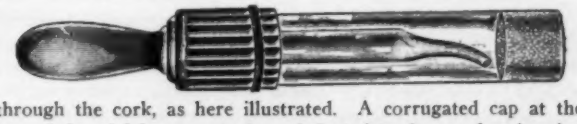
But the manufacturers of rubber goods have not been content this season to supply a variety of new and pleasing models in bathing caps. They have extended their line of accessories for the bathing costume to include numerous other articles, several of which are also shown. The first of these cuts shows an all-rubber sailor collar, the edge of which is decorated with tiny rubber roses—something that is bound to add an air of up-to-dateness to any bathing suit. This cut also shows a pair of rubber buckles, a decoration that can be appropriately applied not only to the belt or girdle, but with perhaps even greater effectiveness to the bathing slippers, which have heretofore presented rather a bare appearance because of the lack of a buckle that would withstand the effects of frequent immersion in salt water. The next figure shows a bather to whose costume has been added a rubber sash or girdle, which closes under a bunch of rubber flowers, the ends of the sash being in Roman stripes in colors to match the plaid cap. As will be noted, this bather is also equipped with a cape of rubber, an accessory which has become very popular this season for wear over the bathing suit. Wreaths of rubber roses are also obtainable for use in trimming the extremely popular beach hat—and they are very genuine appearing and highly decorative. In fact, the line of rubber accessories for the present season has reached a degree of elaborateness never before attained, and would seem to be complete.

From Saks & Co. Photo by Joel Feder.

RUBBER GIRDLE AND CAPE.

"EYE-SNAP."

"Eye-Snap" is the name of a new treatment for tired and aching eyes, and it is offered to the public in the form of a powder contained in a vial with a medicine dropper inserted



through the cork, as here illustrated. A corrugated cap at the top of the vial keeps out air and dust, insuring perfect keeping quality of the powder and absolute sanitation. To use, the vial is filled with warm water and shaken until the powder is

thoroughly dissolved, when the solution is dropped in the corner of each eye.

A NEW RUBBER-STEEL VALVE.

The Voorhees Rubber Manufacturing Co., of Jersey City, New Jersey, have put on the market a new pump valve which has found a very ready sale. This valve, which they term "Rub-Steel" is made by a combination of rubber and steel. The construction consists of a plate of high-grade steel placed in the center of the valve, with a specially tough and lasting rubber composition on each side attached securely to the metal by the company's new "Elchemco" process, which deposits on the steel plate a material in sympathy with rubber and which chemically unites the rubber and steel.

The purpose of the steel plate, of course, is to give great strength to the valve so that the highest pressure cannot warp, twist or get it out of shape, while the rubber surfaces afford the proper seating qualities. This combination gives the valve a rigidity of form which keeps the surface in its normal true position. The inserted steel prevents the high pressure from forcing the valve through the gratings, and the adhesion of the rubber to the steel plate prevents the rubber surfaces from breaking up and the displaced pieces from causing trouble. It has the added advantage that it holds the valve in perfect shape, so that when one side becomes worn, it may be reversed without dressing. By reason of their rigidity, these valves can be made thinner, and therefore secure a greater efficiency for the pump, and they also permit of a softer valve being used for hot water than those in common use. It is claimed that the even distribution of pressure secured prevents "dishing" and the consequent cutting of the valve.

THE "AUTOMASSAGE" SHAVING BRUSH.

The brush shown in the accompanying cut represents the latest improvement in shaving brushes and combines ordinary bristles for application of the lather and a massage device for rubbing it in, both operations being effected at one time. The bristles are "Centuryset" in rubber, and the brush is made in two grades, fully guaranteed. The massage device consists of a cluster of rubber fingers vulcanized in the center of the bristles of an ordinary size brush, and in addition to the saving of time effected, it gives an invigorating massage with every shave. The brushes are sterilized and packed in individual sealed boxes, insuring the consumer a sanitary article which has not been "tried" by previous prospective customers. It retails at popular prices. (The Leopold Ascher Co., 118 Chambers street, New York.)

CLINICAL THERMOMETER IN HARD RUBBER CASE.

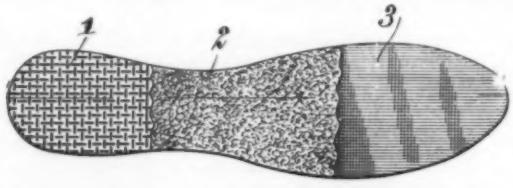
The accompanying illustration shows the Harvard One-Minute Clinical Thermometer in a case which is also a sterilizer. This case is made of hard rubber, finely finished, and fitted with a diaphragm which makes it possible to carry in the case any desired sterilizing solution and to withdraw the thermometer or to lay down the case without losing a drop of the solution. As the thermometer is withdrawn the diaphragm within the case automatically closes, preventing spilling or evaporation of the contents; and yet the case is so simple in design that both the diaphragm and the ends of the case may be removed to permit of cleansing the inside of the case. The

one-minute clinical thermometer in the Harvard sterilizer case should be a valuable aid in the sick room. [The Randall-Faichney Co., Boston.]

NO MORE EXCUSE FOR GETTING COLD FEET.

Here is a benefactor who has destroyed the great enemy of mankind—cold feet. He is Levet A. Long, of Dayton, Ohio. And here is the description of his cold feet annihilator.

It is an insole, made of three layers of material. The accompanying illustration shows a top view of the insole with a part of the two upper layers cut away so as to give an idea of the three. The top layer, No. 1 in the figure, is made of some



pervious material, either wool or cotton. The bottom layer, No. 3 in the figure, is of some impervious material, preferably rubber. But the middle layer, No. 2 in the cut, is the one that really does the work, which perhaps may best be described by quoting from the patent specifications: "The upper layer, 1, comes in contact with the sole of the foot. To create a sensation of warmth a suitable chemical irritating medium is provided. This layer is formed of Cayenne pepper or capsicum, and is interposed between the upper and lower layers 1 and 3. The capsicum is preferably mixed with wool and united by any suitable form of binder, such as an antiseptic adhesive. When the insole is in use, the moisture from the feet is sufficient to dissolve a portion of the active principle of the chemical irritant which comes in contact with the sole of the foot when the fabric 1 becomes moistened. The effect of the capsicum will be to draw the blood of the body to the feet, thereby producing a sensation of warmth."

What a boon to the great cold feet family, which constitutes ninety-five per cent. of the human race. When this new invention is in general use—as must shortly come about—the early greeting between friends will no longer be "Good morning! Have you used Pear's soap?" but "Good morning! How is your Capsicum Layer pulling?"

A TRANSPARENT FOUNTAIN PEN.

A new and unique merit has been added to the Parker's "Lucky Curve" fountain pen, which has had earlier mention in these columns. The barrel of the pen is now made of Bakelite which has all the characteristics of hard rubber with the added merit of transparency. With this new device the quantity of ink in the barrel is no longer determined by computations based on memory, weight and specific gravity with or without a table of logarithms. The user holds the Bakelite barrel up to the light and the literally dark mystery is solved. Ease, quickness and certainty of filling are also claimed for the pen. [Parker Pen Company, Janesville, Wisconsin.]

MANUFACTURERS PROTEST AGAINST LEGISLATIVE DISCRIMINATION.

IN conjunction with leaders in other lines of American industy, many rubber manufacturers have sent their protests to their respective senators and congressmen against the legislation now being considered in Washington exempting members of labor organizations from the operation of certain provisions in the anti-trust laws. The secretary of the Rubber Club of America has brought this matter to the attention of the firm members of the club, mentioning particularly these objectionable features of the measures discriminating in favor of labor:

(1) The provision in the Sundry Civil Appropriation bill (in which $300,000 is appropriated for enforcing the anti-trust laws the coming year) that any of this money shall not be spent in prosecuting labor organizations combining to increase wages, shorten hours of labor or improve labor conditions, or farmers who organize to obtain "fair and reasonable prices for their products."

(2) Section 7 of the Clayton bill providing that labor and agricultural organizations shall not be held to be illegal combinations or conspiracies in restraint of trade under the anti-trust laws.

(3) Section 18 of the Clayton bill which would prevent the courts from using the ordinary process of injunction against certain specified methods employed by labor unions in conducting strikes, such as the boycott, picketing, persuasion of employes who may not wish to listen, etc. The power to issue injunctions is to be limited only in the case of disputes between employers and employes.

He has also mailed to the firm members of the club a sheet, called "Appendix B," issued by the Chamber of Commerce of the United States, giving the exact language of the paragraphs in the pending bills, referred to above,—which are as follows:

EXACT PROVISIONS OF PENDING BILLS.

SUNDRY CIVIL BILL PROVISION.

(H. R. 17041. Making appropriations for sundry civil expenses of the Government.)

"Enforcement of anti-trust laws: For the enforcement of anti-trust laws, including not exceeding $10,000 for salaries of necessary employes at the seat of government, $300,000: Provided, however, that no part of this money shall be spent in the prosecution of any organization or individual for entering into any combination or agreement having in view the increasing of wages, shortening of hours or bettering the conditions of labor, or for any act done in furtherance thereof, not in itself unlawful: Provided further, that no part of this appropriation shall be expended for the prosecution of producers of farm products and associations of farmers who co-operate and organize in an effort to and for the purpose to obtain and maintain a fair and reasonable price for their products."

CLAYTON BILL.

(Section 7, Paragraph 1.)

"That nothing contained in the anti-trust laws shall be construed to forbid the existence and operation of fraternal, labor, consumers, agricultural or horticultural organizations, orders, or associations instituted for the purposes of mutual help, and not having capital stock or conducted for profit, or to forbid or restrain individual members of such organizations, orders or associations from carrying out the legitimate objects thereof; nor shall such organizations, orders or associations, or the members thereof, be held or construed to be illegal combinations or conspiracies in restraint of trade, under the anti-trust laws."

CLAYTON BILL.

(Section 18—Injunctions.)

"That no restraining order or injunction shall be granted by any court of the United States, or a judge or the judges thereof, in any case between an employer and employes, or between employers and employes, or between employes, or between persons employed and persons seeking employment, involving, or growing out of, a dispute concerning terms or conditions of employment, unless necessary to prevent irreparable injury to property, or to a property right, of the party making the application, for which injury there is no adequate remedy at law, and such property or property right must be described with particularity in the application, which must be in writing and sworn to by the applicant or by his agent or attorney.

"And no such restraining order or injunction shall prohibit any person or persons from terminating any relation of employment, or from ceasing to perform any work or labor, or from recommending, advising or persuading others by peaceful means so to do; or from attending at or near a house or place where any person resides or works, or carries on business or happens to be, for the purpose of peacefully obtaining or communicating information, or of peacefully persuading any person to work or to abstain from working; or from ceasing to patronize or to employ any party to such dispute, or from recommending, advising or persuading others by peaceful means so to do; or from paying or giving to, or withholding from, any person engaged in such dispute, any strike benefits or other moneys or things of value; or from peacefully assembling at any place in a lawful manner, and for lawful purposes; or from doing any act or thing which might lawfully be done in the absence of such dispute by any party thereto; nor shall any of the acts specified in this paragraph be considered or held unlawful."

The secretary also encloses another document, issued by the Chamber of Commerce, entitled "Appendix A," which briefly describes the Sherman act and recites the history of the legislation recently passed, and that now being considered, intended to so change the provisions of the Sherman act that in many respects members of labor and agricultural organizations will be exempt from its operation.

Any member of the trade who has not received this communication from the secretary of the Rubber Club would do well to write to the Chamber of Commerce of the United States of America, Washington, D. C., for these two documents, "Appendix A" and "Appendix B."

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Mr. G. H. Dunn, of Cape Town, South Africa, in the United States for the purpose of securing representation of American manufacturers, is especially interested in india rubber duck, imitation leather, and trimmings for carriages suitable for the South African trade. Mr. Dunn may be addressed at the branch office of the Bureau of Foreign and Domestic Commerce, 315 Custom House, New York. Report No. 13,155.

A report from an American consular officer states that a company in his district desires to be placed in communication with American manufacturers of bandages, corsets, rubber and caoutchouc articles in connection with hygiene, braces, and any novelties likely to find good sale in the country in question; inquirer paying cash for all goods. Correspondence should be in Russian if possible—otherwise in German, or correspondence in English forwarded to the consular officer will be translated and sent to the inquirer. Report No. 13,167.

An American consul in Spain reports that a resident of his district desires prices on American tennis rackets and balls. Full information as to gross and net weights is necessary, in order that he may figure duties, etc., and correspondence, catalogs and discount sheets should be in Spanish. Report No. 13,222.

There is a demand in a European country for heavy rubber overshoes, which are now being used extensively. An American consular officer has forwarded a report on this subject, together with names of local dealers who have expressed a desire to be put in touch with American manufacturers, and a copy of this report may be obtained from the Bureau of Foreign and Domestic Commerce, Washington. Report No. 13,230.

A report from an American consular officer in Manchuria states that a local business man is in a position to answer inquiries from American firms interested in talc and its possible importation in regard to a deposit of a fine grade of this mineral in Manchuria and in regard to possible shipments to the United States. Report No. 13,233.

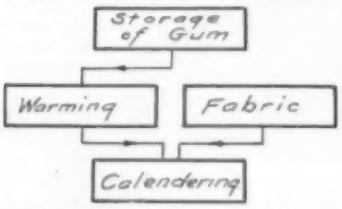
A CALENDER ROOM LAYOUT.

By W. J. Bitterlich.

IN looking over some back numbers of THE INDIA RUBBER WORLD the writer came across an article written by Morris A. Pearson, describing a model calender room, which embodied certain mechanical features.

The writer submits a modification of this layout, embodying several features not shown by Mr. Pearson, and considered from an operating point of view for the most economical production. It should, however, be borne in mind that this layout would not hold good for all classes of rubber mills, since the sizes of calenders and mills and the processes of manufacture vary.

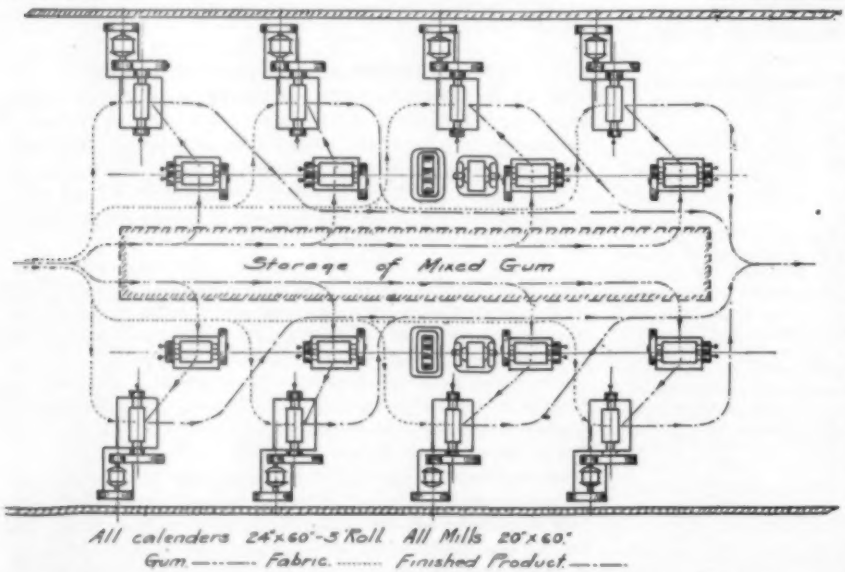
The first essential to the general arrangement of machinery is the routine diagram, which is simply the enumeration, in tabular form, of the several operations.



It should be kept clearly in view that materials in process of manufacture shall flow in one direction to and from the machines in an orderly manner, and without waste of time and energy.

The successful layout of a department involving a sequential arrangement of machinery requires considerable forethought and care, and in many cases much tactful discussion with the foreman of the proposed department.

The routine diagram for this calender room comprises the following:



The essential features of this layout are as follows:

1. The calenders are located near the windows, and the mills nearer the center of the room.

The reason for this arrangement is that the process of calendering, dealing with the product in a more finished stage, demands the best light that the calender room can afford. The function of the mill is merely to warm and soften the gum for the calender.

2. The mill rolls and feed side of the calender rolls are placed as near to each other as is practicable; this with the object of reducing to a minimum the distance traveled by the operator in delivering the batch of gum to the calender.

When one considers that every batch warmed during the day has to travel from the warmer to the calender, it can readily be seen that the saving in labor accomplished by minimizing this distance is quite important.

In the minimizing of this distance it is necessary to lengthen the distance of travel for fabric and finished product. These, however, are delivered in larger quantities than the rubber batches, and therefore have a less number of journeys to travel.

3. The central portion of the room is devoted to the storage of mixed gum. This allows piling the gum as high as practicable, without obstructing the light, and since rubber is affected by light it should be stored in the darkest part of the room.

With the storage at the sides of the room the light from the side windows would be obstructed when the gum is piled high. While some light may be available from a sawtooth roof with a single story building, it is desirable to obtain all the daylight possible at the calenders from sides and above.

4. Since Mr. Pearson has covered the mechanical features so well, there is little to add. The writer, however, suggests that the building should be of one story, about 20 feet high, equipped with a roof of sawtooth construction, and be spanned by a crane the entire width of the building.

This latter feature would allow for quick removal of rolls, frames, and all other heavy parts requiring renewal and repairs. With the mills in the center the shafting should, of course, be below the floor, otherwise passageway and valuable space would be lost. This can be arranged by building a tunnel; or, better still, a basement, and carrying the foundations of the machinery to the floor below. Then all steam and water pipes would be located in this basement.

THE INCREASING USE OF AIR-PRESSURE GAGES.

Evidence that motorists generally realize that inflation is a decidedly important element in tire service is found in the increasing use of the air pressure gage. Campaigns of education carried on by tire manufacturers are bearing fruit. Experience also has been a good, though perhaps an expensive teacher. The man who pays the bills has found out that if he expects his tires to render good service he must keep plenty of air in them. Under-inflation is the most pernicious abuse to which tires are subjected, according to Mr. J. D. Anderson, of the United States Tire Co. He observes: "Running tires so soft that they will not remain round under load paves the way for a large percentage of the injuries which decrease mileage and increase tire maintenance expense.

"The sidewalls of a tire are its thinnest part, and here most of the bending action takes place when the wheel is turning. If the tire is not given enough air to keep it perfectly round the action of the rim on the sidewalls becomes violent and in a short time the carcass is broken down. We recommend," he continues, "twenty pounds of air to the inch. A four inch tire should be inflated to 80 pounds, a five inch tire to 100 pounds, and so on through the various sizes. It is absolutely impossible to tell whether a tire has sufficient air in it by any amount of feeling or kicking, and here is where many motorists make a big mistake. A tire may appear round and feel hard when as a matter of fact it has only half enough pressure on the inside.

"More air pressure gages are being used this season than ever before and car owners are certain to save a vast amount of good money through this channel."

News of the American Rubber Trade.

RUBBER CLUB OUTING JULY 14.

THE annual midsummer outing of the Rubber Club of America will be held in Boston and its environs on July 14. In the morning there will be a golf tournament at the Wollaston Golf Club, under the general management of Philip E. Young, of the Acushnet Process Co., New Bedford. At 1 o'clock the steamer "Griswold" of the Boston and Nahant line will leave Otis Wharf and after a sail through the harbor dock at Peddock's Island, where the annual ball game will take place. The contest this year will be between the Married Men and the Single Men, the former under the captaincy of James J. Clifford, of the Boston Woven Hose & Rubber Co., of Cambridge, and the latter captained by Henry G. Tyer, of the Tyer Rubber Co., of Andover. John S. Clapp, of the Boston office of the New Jersey Rubber Co., will be general manager of the ball game.

After the game the members will again embark and will sail to the Point Shirley Club, at Winthrop, where, after a quoit tournament and the running of an obstacle race, they will sit down to one of those shore dinners which years ago made Point Shirley famous.

The committee is making unusual preparations, in the hope that this will be the most successful outing the club has ever had.

RUBBER COMPANY DIVIDENDS.

The Converse Rubber Shoe Co., of Boston, paid on June 1 a regular semi-annual dividend of 3½ per cent. on its preferred stock, to stockholders of record on May 21.

The Rubber Goods Manufacturing Co., of New York, paid on June 15 a regular quarterly dividend of 1¾ per cent. on its preferred stock and a dividend of 1 per cent. on its common stock, to stockholders of record on June 10.

The Apsley Rubber Co., of Hudson, Massachusetts, has declared a regular semi-annual dividend of 3½ per cent. on its preferred stock, payable July 1 to stockholders of record on June 25.

The B. F. Goodrich Co., of Akron, has declared a regular quarterly dividend of 1¾ per cent, on its preferred stock, payable July 1 to stockholders of record on June 19.

The Kelly-Springfield Tire Co., of New York, has declared a quarterly dividend of 1½ per cent. on its 6 per cent. preferred stock, and a dividend of 1¾ per cent. on its 7 per cent. second preferred stock, payable July 1 to stockholders of record on June 24.

The Boston Belting Co., of Boston, has declared a quarterly dividend of two dollars ($2) per share, payable July 1 to stockholders of record on June 15.

The Mohawk Rubber Co., of Akron, has declared a regular quarterly dividend of 1¾ per cent. on its preferred stock, and a dividend of 1½ per cent. on its common stock—both payable July 1.

The Portage Rubber Co., of Akron, at its meeting on June 18, declared a regular quarterly dividend of 1¾ per cent. on its preferred stock.

The United States Rubber Co., of New York, has declared a regular quarterly dividend of 2 per cent. on its first preferred stock, a dividend of 1½ per cent. on its second preferred stock and a dividend of 1½ per cent. on its common stock—payable July 31 to stockholders of record on July 15.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the world.

SECOND DATE SET FOR WALPOLE SALE.

July 8 has been set as the date of the second auction sale of the plant and business of the Walpole Tire & Rubber Co., now in the hands of receivers. No upset price has been fixed by the court, but each bid must be accompanied by a deposit of $60,000 to insure its validity, and it has been decided to sell the entire property as a going concern. The receivers have also been authorized to declare a second dividend of 4 per cent.—making a total of 8 per cent. paid on all approved claims against the company—for which purpose the sum of $50,000 has been set aside.

GOODRICH SHOE TICKET 15,000 PAIRS.

A great many people, even in the rubber trade, have become so accustomed to associating the name Goodrich with tires and mechanical goods that they will be quite surprised to learn that the footwear department of that big plant is turning out a ticket of 15,000 pairs of boots and shoes per day. The selling manager of the footwear department is exceedingly optimistic over the footwear outlook for his company.

RUBBER RECEIVED FROM AN AMERICAN PLANTATION.

The General Rubber Co., which looks after the crude rubber supplies of the United States Rubber Co., recently received its first consignment of rubber from the company's great 35,000-acre plantation in Sumatra. This consignment consisted of 1,000 pounds of corrugated smoked sheet and came from that part of the big plantation known as Langkum.

THE PHILADELPHIA RUBBER WORKS OPEN NEW YORK OFFICE.

The Philadelphia Rubber Works Co., which has large reclaiming plants in both Philadelphia and Akron, has recently opened a New York office, in the Vanderbilt Avenue Building, corner of Forty-second street and Vanderbilt avenue. This is in charge of John S. Lowman, who has hitherto been manager of the Akron office. There will still continue to be an office in connection with the factory at Akron, but all the general business hitherto carried on through the Akron office will now be taken care of in this new New York office.

COMMERCIAL ARBITRATION.

The report of the committee on commercial arbitration connected with the Chamber of Commerce of the State of New York was submitted at the one hundred and forty-sixth annual meeting of the New York Chamber of Commerce on May 7. As this subject is one that now occupies the minds of commercial leaders, this report will be found to be of unusual interest. The work done by the committee during the past year has confirmed the faith of its members in the practicability and scope of arbitration as a means of settling commercial disputes. They are further confirmed in this belief by the keen interest shown in the results of their work by other commercial organizations, not only in the United States but abroad, a number of which, after careful investigation, have adopted, either in whole or in part, the rules and regulations used by the Chamber of Commerce in its arbitration proceedings.

The committee has given a great deal of time and attention to the subject of enacting a model commercial arbitration law, uniform for all states. The draft of such a law has been prepared by Mr. Julius H. Cohen, a prominent member of the New York Bar. A copy of this model law which the committee hopes to see adopted in the various states is given as an appendix to the report. It consists of 29 short paragraphs occupying about 5 pages of the report and will be found well worth reading by anyone at all interested in this most important subject.

FINANCIAL STATEMENT OF THE UNITED STATES TIRE CO.

The United States Tire Co. has filed with the Massachusetts secretary of state a statement of its financial condition, dated March 31, 1914, compared with the previous year, which is as follows:

ASSETS.

	1914.	1913.
Real estate and investments	$91,953	$330,474
Merchandise, etc	6,192,380	9,395,452
Cash and debts receivable	5,475,129	4,193,728
Total	$11,759,462	$13,919,654

LIABILITIES.

Capital stock	$500,000	$500,000
Accounts payable	11,158,978	12,925,511
Reserve	100,484	494,143
Total	$11,759,462	$13,919,654

TIRE PRICES.

In a recent number of an automobile journal mention was made of a new tire list issued by the Packard Motor Car Co., of New York, in which the prices of Ajax, Batavia, Fisk, Kelly-Springfield and Republic tires had been advanced, while the "Nobby" tread type had been reduced over $3 in price. This was an error, the prices of these various tires remaining unchanged. It seems that the Packard company recently issued a tire price list to owners in which the mistake was made of quoting dealers' prices, and that later the new and corrected list of retail prices was sent out, which showed the changes mentioned in the paragraph referred to.

The Wood-Milne Co., Ltd., of Leyland, near Preston, Lancashire, has revised its prices on solid rubber tires, the latest list showing a reduction.

THE CHEMISTS' CLUB.

With a membership grown from 89 in 1898 to its present number of 1,187, the Chemists' Club has ground for claiming to be a national institution. Originally located at 108 West Fifty-fifth street, the expansion of its usefulness called for larger quarters. In 1911, through the magnanimous action of many friends, it was housed in its present location, at 52 East Forty-first street, where it occupies the lower five floors of an eleven-story fireproof structure. The upper six floors are let to chemists for offices and laboratories.

The auditorium, known as Rumford Hall, has a seating capacity of 310, while the library contains 16,000 volumes, including sets of 800 journals. The users of the library have increased from 82 in the month of June, 1911, to a monthly average of 347 during 1914. Guest rooms occupy two floors and have the best hotel service.

Going beyond the ordinary functions of a library, that section of the institution has special services at the disposal of members, by which the staff can make searches, compilations and translations on any given chemical subject. The Department of Research carries this idea still further.

Another feature of the club's usefulness is the employment bureau, which aims to provide employers with chemists and chemists with positions. This branch has placed upwards of 500 chemists within the last 8 years.

The officials are: President, Charles F. McKenna; vice-presidents, Ellwood Hendrick and K. P. McElroy; secretary, John E. Teeple; treasurer, Laurence Hutton Hendricks.

Such are the principal features of the club as shown by the year book for 1914. In a bright pamphlet William L. Dudley, of Vanderbilt University, Nashville, Tennessee, has told the story of the rise of the institution to its present importance; giving an interesting account of the advantages it places at the disposal of its members.

TRADE NEWS NOTES.

The capital stock of the R. J. Caldwell Co., commission merchants and large dealers in cotton duck and special fabrics, of 15 Park Row, New York, has recently been increased to $200,000.

The Federal Rubber Manufacturing Co. is again adding to its factory at Cudahy, Wisconsin, and by the end of the season the already extensive plant will be considerably increased in size and capacity.

A company has lately been incorporated in Boston, with a capital stock of $50,000, by Harry A. Clapp, Lester M. Bacon and Frank O. White, to be known as the Eastern Inter-Rim Co.

The new home of The B. F. Goodrich Co.'s Detroit branch, located at Hancock and Woodward streets, is not only a very attractive, but a very substantial structure, of reinforced concrete, and contains approximately 80,000 square feet of floor space, of which an area comprising 6,000 square feet is devoted to the service station, while the tire storage space will take care of 200,000 tires, without mentioning mechanical goods and sundries.

The plant of the Mexican Crude Rubber Co., at Detroit, destroyed by fire on May 15, as mentioned in our June number, page 491, is said to have been fully insured and will probably be rebuilt.

The Hazard Manufacturing Co., of Wilkes-Barre, Pennsylvania, which manufactures rubber covered wires and cables for light, power, telephone and railroad signal work, wire rope, etc., has removed its New York offices from 50 Dey street to 533-541 Canal street.

Automobile tires will constitute the product of the Saugus factory of the American Tire Co., of Avon, Massachusetts, recently purchased from the Sagamore Rubber Co.

The Xenia Rubber Manufacturing Co., of Xenia, Ohio, which in the past has manufactured only mechanical rubber goods, is said to have plans under way for the erection of a factory at Dayton, Ohio, where automobile tires will be manufactured.

Among the exhibitors at the thirty-seventh convention of the National Electric Light Association, held at Philadelphia, early in June, were the Standard Underground Cable Co., of Pittsburgh, whose exhibit included various kinds and sizes of insulated wire, and the John A. Roebling's Sons Co., of Trenton, which showed samples of a similar line of production.

October 17 to 24 has been fixed as the date of the Automobile Show at Pittsburgh, Pennsylvania, to be held under the auspices of the Automobile Dealers' Association of that city.

A rubber-tired six-ton electric truck which has been put in use at Galveston, Texas, for carrying bales of cotton between the compress and the docks, is said to be performing more economically, speedily and satisfactorily the work formerly done by six mules.

If present plans are successfully executed, a modern plant will soon be in operation at San Antonio, Texas, for the manufacture of tires and rims for automobiles and other vehicles. This company, not yet incorporated but stock in which is offered for sale by J. A. Walsh, Moore Building, that city, is known as the Luck Tire & Manufacturing Co. and is intended to manufacture tires under patent granted to John J. Luck, of 119 Hicks avenue, San Antonio.

The Delage car which, driven by Rene Thomas, won the Memorial Day automobile race at Indianapolis, will be driven by Billy Knipper in the race to be held at Sioux City on July 4; and in this event it will be equipped with Firestone tires. This is also true of the car to be driven by Barney Oldfield.

Mr. E. W. Snyder, for some time superintendent of the American Tire & Rubber Co., of Akron, Ohio, has severed his connection with that company.

PERSONAL MENTION.

Mr. George B. Hodgman, president of the Hodgman Rubber Co., and also president of the Rubber Club of America, sailed on the "Olympic" on June 20 for a few weeks in England and on the Continent. He went first to London to visit the rubber exhibition, expecting later to visit Berlin, Paris and other points. He will return about August 1.

Mr. F. C. Hood, general manager of the Hood Rubber Co., Watertown, Massachusetts, sailed for Europe on June 23, with the expectation of remaining until September.

C. L. Garrison has been appointed manager of the Miller Rubber Co.'s branch just opened at St. Louis, Missouri, and F. W. Staley has been engaged as traveling representative for Illinois and Missouri, where he was formerly manager of the Diamond Rubber Co. branch.

An inventory of the estate of the late George H. Hood, of the Hood Rubber Co., Boston, places its value at $472,447.86, chiefly personal and composed of bonds and stocks of various corporations, the realty holdings being valued at $15,000.

At a recent meeting of the directors of the Post-Graduate Medical School and Hospital, of New York, James C. Brady, son of the late Anthony N. Brady and a director in the United States Rubber Co., was elected a director of the hospital board.

John E. Whitmyer, who has lately returned from a honeymoon vacation spent in the White Mountains, has been promoted from a position in the sales force of the United States Tire Co. to the management of the Worcester, Massachusetts, branch of that company, succeeding William B. Ellenbeck, Jr., who has become associated with another tire concern in New York.

Harry S. Quine, secretary to President Seiberling of the Goodyear Tire & Rubber Co., Akron, was overcome by heat during the first hot wave of the season, while adjusting the engine of his automobile on his way home from work. He was found prostrated in the street and carried to the residence of a physician, where he was revived.

Clarence L. Weaver, of the Banigan Rubber Co., Providence, has just returned from a trip to Europe. During this trip, taken in company with Mrs. Weaver, and which he describes as being one of uninterrupted pleasure, England, France, Switzerland, Italy, Belgium, Holland and Germany were visited.

Among those who sailed for Europe on the "Adriatic" on June 11 was Dr. J. J. Thompson, chief chemist of the Federal Rubber Manufacturing Co., of Cudahy, Wisconsin. During his stay abroad Dr. Thompson expects to visit a number of the rubber manufacturing centers for the purpose of studying conditions, as well as to attend the London Rubber Exposition.

The Chamber of Commerce of the State of New York has compiled a list of its members who are ready to act in the capacity of arbitrators in cases of commercial dispute submitted to that body for settlement. The members listed for arbitration in rubber disputes are William Hillman, Theodore S. Hodgman and Farnham Yardley.

Miss Edith Marion Bass, daughter of Mr. William Frederick Bass, vice-president and general manager of the General Rubber Co., was married on June 13 at her father's residence, 77 Eighty-second street, Brooklyn, to Mr. M. Henry Keip, Jr. Mr. Keip is a graduate of Cornell, class of 1910, and is engaged in business in New York.

Theodore Hofeller, president of Theodore Hofeller & Co., of Buffalo, New York, and prominent in the waste rubber industry, sailed on the "Kronprinzessin Cecilie" on June 16, for a three months' pleasure trip to Europe. The tour, on which he was accompanied by his wife, will include visits to Austria, France, Germany and Switzerland.

Mr. Albert D. Thornton, superintendent of the Canadian Consolidated Rubber Co., was married to Miss Jean A. Hannah, daughter of Mr. and Mrs. James W. Hannah, at the First Presbyterian Church in Montreal on June 3.

Mr. Clarence Guild, who for the last seven or eight years has been an assistant to the general manager of the United States Rubber Co., at the New York office, was married on June 3 to Miss Helen McIlvain, of Brooklyn.

Mr. L. R. Macphail, who has been associated for some time with The Waterhouse Co., of Honolulu, in charge of their interests at Singapore, passed through New York the middle of June on his way home to England for a few months' vacation. He met a number of the prominent rubber men of New York, and gave an interesting account of the situation in the East. He expects to return to Singapore about the last of the year.

MR. BROMLEY OF COLOMBO IN NEW YORK.

Mr. H. J. Bromley, representing Bosanquet & Co., rubber shippers of Colombo, Ceylon, is registered at the Holland House in New York. He intends to remain in this city until the middle of July and expects before leaving to arrange with one of the New York importers for the direct shipment of Ceylon rubber from his company to this port.

MR. MULLEN BECOMES NEW YORK AGENT.

William F. Mullen has recently been appointed New York agent of the United Malaysian Rubber Co., Ltd., of London, in place of J. Warren Bird, who lately resigned that position. Mr. Mullen has been with this company ever since it was organized, being one of its traveling representatives, so that he has a thorough knowledge of the requirements of the position to which he has been promoted.

CHANGE IN PATTERSON RUBBER CO. MANAGEMENT.

The Patterson Rubber Co., of Lowell, Massachusetts, incorporated in October, 1912, has recently been reorganized, the former president and vice-president, John S. and James M. Patterson, having resigned and disposed of their holdings in the company. The original organizers of the company were John S. and James M. Patterson, F. H. Appleton, F. H. Appleton, Jr., and George F. S. Singleton. The last three, while not active in the management of the company, continue their interest and holdings in it. The business is now being carried on by John L. Morse, treasurer, and Walter N. Macdonald, factory manager, both of whom are extremely optimistic regarding its future prospects. This company manufactures automobile tires and tubes exclusively, its factory having a capacity of about 200 tires per day, and it is said that indications point to a necessity for increased facilities in the near future.

RAVAGES OF THE BOLL WEEVIL.

In a statistical report the Bureau of the Census points out that the Mexican Boll Weevil first appeared in Southern Texas in 1892, and has since steadily advanced northward and eastward. The total area infested in 1913 has been estimated by the Department of Agriculture at 296,500 square miles, while the total loss thus caused in the production of cotton in the United States is believed to be in excess of 10,000,000 bales, representing $500,000,000. In addition to these losses, a further reduction would be represented by the total or partial abandonment of cotton growing by many farmers.

The boll weevil has infested a large part of Texas, a considerable portion of Oklahoma and Arkansas, practically all of Louisiana and nearly all of Mississippi. It is now in the southern part of Alabama, in Western Florida and within a few miles of Georgia, which State it will probably invade in 1914.

As to methods for combating the evil, authorities have recommended the destruction of the infected plants in the fall by pulling up and burning the stalks. October is the most favorable time for this work, though a good deal can be accomplished in November. Conditions throughout the cotton belt vary considerably. Some methods may be more beneficial in some sections than in others, but it is believed that the above are applicable to all sections and will greatly minimize the destructiveness of this pest and mitigate the losses following its appearance.

NEW INCORPORATIONS.

Airplex Inner Tire Co., June 11, 1914, under the laws of Missouri; authorized capital, $3,000. Incorporators: Richard M. Howe and James J. Howe—both of Webster Groves—and Stanton Palmer, St. Louis—all in Missouri. To buy, sell and manufacture articles of rubber and rubber substitutes and deal generally in automobile tires, etc.

Automobile Tire Cooling Co., May 15, 1914, under the laws of New Jersey; authorized capital, $125,000. Incorporators: Dexter Ball, Allan Lindsley and Caleb C. Leonard—all of 504 Main street, Asbury Park, New Jersey. The objects of the company are the selling of the rights and territory to manufacturers of automobiles, dealers in automobiles and owners of automobiles, of a certain patented process or device for cooling automobile tires and for the manufacture and sale of all articles that may be used in connection with said device for cooling the tires of automobiles, and all electric, steam, or gasoline driven vehicles.

B & J Tire & Rubber Co., Inc., May 12, 1914, under the laws of New York; authorized capital, $10,000. Incorporators: John W. Bebus and Edward A. Jacobs—both of 253 West Fifty-eighth street, New York City.

Conant, Houghton & Co., Inc., June 5, 1914, under the laws of Massachusetts; authorized capital, $50,000. Incorporators: Waldo E. Conant, Daniel G. Houghton, Harold W. Conant—all of Littleton—and Elihu G. Loomis, Bedford—all in Massachusetts. To manufacture and sell elastic and non-elastic fabrics and components thereof, trimmings, elastic and non-elastic braids and wearing apparel.

Continental Asbestos Corporation, June 9, 1914, under the laws of Massachusetts; authorized capital, $200,000. Incorporators: John H. Savery, 15 Winifred avenue; Frank L. Backus, 7 Summer street, and George H. Warrell, 1 Benefit street—all in Worcester, Massachusetts. To manufacture and sell asbestos lubricants and the purchase and sale of asbestos and oils.

Davis-Fry Manufacturing Co., March 4, 1914, under the laws of California; authorized capital, $5,000,000. Incorporators: George L. Davis, Jay C. Fry, Bertha M. Davis—all of Oakland—John Roddan, Alameda, and Orville E. Jackson, Berkeley—all in California. To manufacture and handle the "Hurley Hercules Patents."

Eastern Inter-Rim Co., May 19, 1914, under the laws of Massachusetts; authorized capital, $5,000. Incorporators: Harry A. Clapp, 28 West Sixty-third street, New York City, and Lester M. Bacon, and Frank O. White—both of 60 State street, Boston, Massachusetts. To manufacture, sell and repair automobiles and motors of all kinds, etc.

Excello Tire & Rubber Co., June 12, 1914, under the laws of Delaware; authorized capital, $500,000. Incorporators: Franklin L. Mettler, Daniel Farra—both of Wilmington—and Alfred Whartenby, Hollyoak—all in Delaware. To deal in and act as agent for automobile and any other vehicle tires, tubes and all kinds of rubber goods.

Independence Tire & Rubber Co., Inc., June 12, 1914, under the laws of New York; authorized capital, $5,000. Incorporators: L. Walter Lissberger, Hotel Wellington; Henry L. Lewis, 426 East Eighty-sixth street, and Frank H. Gross, 1650 Broadway—all in New York City.

Interchangeable Heel Co., May 15, 1914, under the laws of Delaware; authorized capital, $200,000. Incorporators: Martin E. Smith, Francis B. Hooper and A. E. Smith—all of Wilmington, Delaware. To manufacture and deal in detachable and interchangeable heels made of rubber, etc.

National Rubber Co., Ltd., The, March 28, 1914, under the laws of Canada; authorized capital, $500,000. Incorporators: C. S. Kilgour (president), F. E. Walker (vice-president), Dr. Geo. Wenig (secretary and treasurer), C. L. Boyd and A. P. Rumsay. Principal office, Hamilton, Ontario. To manufacture automobile tires and tubes and other rubber goods.

New York Steam Auto Tire Works, Inc., June 22, 1914, under the laws of New York; authorized capital, $10,000. Incorporators: John J. Foley, Minnie Beck and J. A. Callanan—all of 32 Nassau street, New York City.

Reliable Auto Tire Co., April 10, 1914, under the laws of Missouri; authorized capital, $3,000. Incorporators: Joe Sacks, Louis Wyner and Ben J. Sacks—all of St. Louis, Missouri. To buy and sell, at wholesale and retail, tires of all kinds for automobiles, etc.

Spartan Tire & Rubber Co., Inc., June 9, 1914, under the laws of New York; authorized capital, $100,000. Incorporators: Harry L. Graff, 248 West One Hundred and Fifth street; Henry Feuchtwanger, 147 West Fifty-fifth street, and H. W. Newburger, 17 Livingston Place—all in New York City.

Sussex Rubber Co., The, June 1, 1914, under the laws of New Jersey; authorized capital, $50,000. Incorporators: Charles F. Teigeler, Alfred J. Teigeler—both of 194 Union avenue—William M. Sharpe, 202 Carmita avenue, and James W. Miller, 143 Mountain Way—all in Rutherford, New Jersey. To deal in rubber tires, rubber goods, etc.

Ten Broeck Tire Co., April 9, 1914, under the laws of Tennessee; authorized capital, $500,000. Incorporators: S. S. Adams, Jr., John G. Gray and M. B. F. Hawkins. Principal place of business, Louisville, Kentucky. To manufacture, buy and sell automobile accessories.

Tubine Co., Inc., June 3, 1914, under the laws of New York; authorized capital, $10,000. Incorporators: Osmer S. Burr, 23 Barclay street; Achille Brile, 102 West Fifty-fourth street, and Fred Rosenbaum, 2345 Eighty-third street—all in New York City. Tire fillers, repairs, etc.

Vulcan Fibre Co., May 18, 1914, under the laws of Massachusetts; authorized capital, $200,000. Incorporators: J. E. Carr, 159 Dartmouth street; J. R. Davies and Edward Haberstroh—both of 617 Tremont street—all in Boston, Massachusetts. To manufacture rubber goods, rubber materials and rubber compounds and the machinery for producing such materials.

RECENT CUSTOMS RULING.

A decision has been rendered by the Board of Reappraisers affecting the importation of rubber balls. The shipment involved in the ruling was forwarded to New York by the London agents of an Austrian manufacturing concern. Upon arrival at this port the appraiser advanced the invoice values about 70 per cent. ad valorem and duty on the higher basis was demanded, together with accruing penalties. At the hearing it was brought out that orders were given by the New York importers to the London agents for shipment of the Austrian balls through England because of the fact that export prices for such goods are lower in England than in Austria, owing to British competition. The Board of Appraisers decided that the balls were properly invoiced on the basis of the prevailing market prices in England, thus reversing the decision of the single appraiser.

The report of the American Telephone & Telegraph Co., lately issued, gives the quantity of wire in use in the operation of its telephone lines in the United States at the close of 1913 as follows: Underground wire, 8,817,815 miles; submarine wire, 31,833 miles; aerial wire, 7,261,363 miles—total, 16,111,011 miles.

Rubber soled shoes, especially in women's lines, are more popular than ever this year, being worn not only in sport events but regularly.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

THE NEW KELLY-SPRINGFIELD STOCK.

More than 90 per cent. of the 4 per cent. income debenture bonds of the Kelly-Springfield Tire Co. having been deposited with the Bankers Trust Co., directors of the tire company have authorized the bankers to issue in exchange new 6 per cent. cumulative preferred stock par for par. The board also directed that the 78½ per cent. accumulated dividends on the present issue of preferred stock be paid in 7 per cent. cumulative second preferred stock. No fractional shares of the second preferred will be distributed, cash being paid in lieu of fractional parts of stock to which holders of the preferred may be entitled.

NATIONAL TIRE & RUBBER PLANT OPENED JUNE 10.

The factory of the National Tire & Rubber Co., at East Palestine, Ohio, work on which was started about November 1, 1913, was formally opened on June 10, when 700 persons accepted the invitation extended by the management to visit the new plant and observe its operation. Active work at this factory—which is the third rubber plant in operation in East Palestine—commenced on Monday, June 8. The present equipment and capacity of the plant will allow of an output of 500 tires per day. The product will consist of the "Capitol" non-skid tire and "Red Man" and "Grey Paragum" tubes. The plant is of fireproof construction, reinforced concrete, with Fenestra steel sash and corrugated glass.

The line mill machinery installed in this plant is the product of the Turner, Vaughn & Taylor Co., of Cuyahoga Falls, Ohio; the tire building machines and the vulcanizers were made by the Adamson Machine Co., of Akron, and the vacuum drying apparatus is from the plant of the Buffalo Foundry & Machine Co., of Buffalo, New York.

A MOVEMENT TO INCREASE FOREIGN TRADE.

The National Foreign Trade Convention, held at Washington May 27 and 28, has resulted in the organization of a National Foreign Trade Council—composed of thirty men nationally prominent and representative of the industrial, commercial, transportation and financial industries of the country—whose purpose it is to awaken America to a realization of "her privilege and her power in foreign trade." The movement sprang from a belief on the part of industrial leaders that the prosperity of the country depends upon increased export trade and in the necessity for coordination of the nation's foreign trade activities.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of the shares of rubber manufacturing companies on June 20 last are furnished by John Burnham & Co., 31 Nassau street, New York, and 41 South La Salle street, Chicago:

	Bid.	Asked.
Ajax-Grieb Rubber Co., Common	220	...
Ajax-Grieb Rubber Co., Preferred	99	...
Firestone Tire & Rubber Co., Common	300	305
Firestone Tire & Rubber Co., Preferred	108	109½
The B. F. Goodrich Co., Common	24½	24⅞
The B. F. Goodrich Co., Preferred	88¼	90
Goodyear Tire & Rubber Co., Common	170	175
Goodyear Tire & Rubber Co., Preferred	97	99
Kelly-Springfield Tire Co., Common	59	62
Kelly-Springfield Tire Co., Preferred	143	146
Miller Rubber Co.	139	142
Portage Rubber Co., Common	...	40
Portage Rubber Co., Preferred	...	90
Rubber Goods Mfg. Co., Preferred	100	110
Swinehart Tire Co.	85	87
United States Rubber Co., Common	58½	59
United States Rubber Co., 1st Preferred	103	103⅜

TRADE NEWS NOTES.

William H. Scheel, 159 Maiden Lane, New York, is offering rubber manufacturers a high grade tested Brilliant Vermillion as a substitute for English Vermillion.

The Harris Tire Co., for the past eight years engaged in a general tire repair and sales business at Perry and Drayton streets, Savannah, Georgia, has recently filed application for incorporation, the petition including a clause whereby if desired the company will be able to manufacture automobile tires, although it is not the present intention to engage in this line of manufacture.

A company has been formed on Long Island with $10,000 capital stock to manufacture rubber tires and other rubber goods. It is known as the Forbes Rubber Co., and the incorporators are Thomas C. Forbes, Jr., George V. and Anna S. Sloat—all of Freeport.

Contracts for fire hose equipment of various cities recently awarded have included the following: Cloquet, Minnesota, 400 feet of Empire Rubber & Tire Co.'s "Paragon" hose to the Plant Rubber Co., of Minneapolis; Woonsocket, Rhode Island, 1,000 feet to the United & Globe Manufacturing Cos.; Lockport, New York, 350 feet to the Empire Rubber & Tire Co. and 150 feet to the Boston Belting Co.; Nashville, Tennessee, 1,750 feet each to the B. F. Goodrich Co. and the Eureka Fire Hose Co.; Brownville, Pennsylvania, 500 feet to the Eureka Fire Hose Co.; Lincoln, Illinois, 1,000 feet to the New York Belting & Packing Co.; Elmira, New York, 600 feet to the Fabric Fire Hose Co. and 200 feet to the Bi-Lateral Fire Hose Co.; Carbondale, Pennsylvania, 1,500 feet to the C. C. C. Fire Hose Co.

A factory is soon to be erected at Hamilton, Ontario, and equipped with thoroughly up to date machinery for the manufacture of rubber goods. This factory will be operated by the National Rubber Co., Limited, to which a Canadian charter was recently granted. The officers of the new company, which is capitalized at $500,000, are: C. S. Kilgour, president; F. E. Walker, vice-president; Dr. Geo. Wenig, secretary and treasurer. These officers, with C. L. Boyd and A. P. Ramsay, constitute the Board of Directors. The intention of the company is to manufacture tires and tubes at first, later branching out into other lines of rubber goods.

INDIA RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india rubber and gutta percha for the month of March, 1914, and for the first nine months of five fiscal years, beginning July.

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
March, 1914	$210,112	$79,005	$684,679	$973,796
July-February	1,569,872	832,571	4,757,876	7,160,319
Total, 1913-14	$1,779,984	$911,576	$5,442,555	$8,134,115
Total, 1912-13	1,966,639	1,178,268	6,194,003	9,338,910
Total, 1911-12	1,710,395	1,232,428	5,330,999	8,273,822
Total, 1910-11	1,511,975	1,801,977	4,485,644	7,799,596
Total, 1909-10	1,416,655	1,499,770	3,510,618	6,427,043

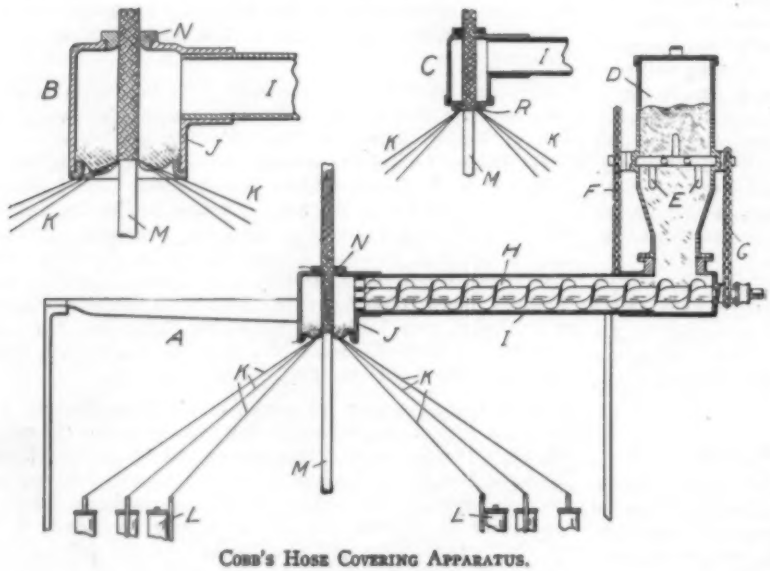
The above heading, "All Other Rubber," for the month of March, 1914, and for the nine months of three fiscal years, beginning July 1, includes the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
March, 1914	$327,104	$62,728	$389,832
July-February	2,051,855	378,238	2,430,093
Total, 1913-14	$2,378,959	$440,966	$2,819,925
Total, 1912-13	2,809,917	445,826	3,255,743
Total, 1911-12	1,869,471	393,920	2,263,391

New Machines and Appliances.

COBB'S MACHINE FOR COATING WOVEN HOSE.

THE latest apparatus to be invented by Henry Z. Cobb, who has contributed so widely to the machines employed in rubber factories, and more especially to hose machinery, is a device for applying friction dough to hose directly above the braiding point. In this apparatus the rubber compound is applied so that the converging threads from the braiding machine enter the lower end of the coating chamber where they come into contact with the rubber. In this respect the machine differs from a former apparatus of Mr. Cobb's in which the hose was passed through the coating cylinder before the covering was braided on. The new apparatus has the advantage of passing the newly formed braided web through the plastic material so that the rubber penetrates the meshes of the woven cover.



COBB'S HOSE COVERING APPARATUS.

Referring to the drawings herewith, *A* represents part of a braiding machine with the addition of the coating cylinder, conveyor and mixing cylinder. *B* represents an enlarged section of the coating cylinder, while *C* shows the cylinder in modified construction. Referring to the first of these drawings, the friction dough is placed in a cylinder *D*, in which it is kept stirred up by agitator blades *E*. The shaft of these stirring blades is revolved by a chain *F* passing over a sprocket on the end of the shaft and obtaining its motion from some convenient part of the braiding mechanism. The opposite end of the shaft carries another sprocket which actuates the chain *G*, this chain revolving a screw conveyor *H* in the cylinder *I*. This conveyor forces the dough into the coating cylinder *J*, which is open at its lower end. The threads *K* from bobbins *L* of the braiding machine converge at the lower end of the coating cylinder where they are braided on the core or hose lining *M*. As the threads are in constant motion their upward movement tends to keep the dough in the cylinder and prevent it from falling through between the threads. The dough, however, gravitates sufficiently to pass down and cover the threads before they are braided around the hose.

The speed of the conveyor may be regulated so that enough dough is kept in the cylinder to maintain the lower surface of the dough just in contact with the threads as shown in the drawings. After being braided on the hose, the newly formed web passes up through the rubber and becomes thoroughly impregnated. The surplus dough is wiped off from the hose by a die *N* at the upper end of the cylinder. The modified form *C* of the coating cylinder has a die *R* at the lower end and with this form of cylinder the thread is braided over the hose before passing into the friction dough. Otherwise, this form of cylinder is the same as the other. [U. S. Patent 1,094,879, April 28, 1914, Henry Z. Cobb, Winchester, Massachusetts.]

A DECORTICATOR FOR LANDOLPHIA.

DECORTICATING machines of various types have been designed in the past for crushing vines for the subsequent removal of the gum. The two drawings in Figs. 1 and 2 herewith show respectively a side elevation and a cross section of a *Landolphia* vine decorticator designed and recently patented by J. L. Palmer, of London, England.

The machine comprises a frame *A* in which are journaled a number of fluted rollers *B*, forming a traveling bed. Each roller carries a worm gear *C*, engaging a worm shaft *D*, by means of which all of the rollers may be rotated simultaneously in the same direction. Above the rollers *B* are two wheels, each made up of four rows of steel rods *E*, which act as hammers. The hammers are loosely pivoted in the hubs *F*. Their outer ends are toothed or grooved, and when in motion they just clear the bed of rollers *B*. The main shaft *G* is rotated at high speed, the centrifugal force of the revolving hammers keeping them extended. The vines are fed into the machine over the traveling

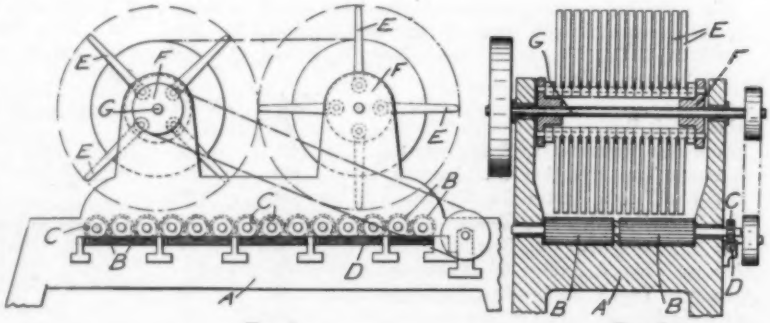


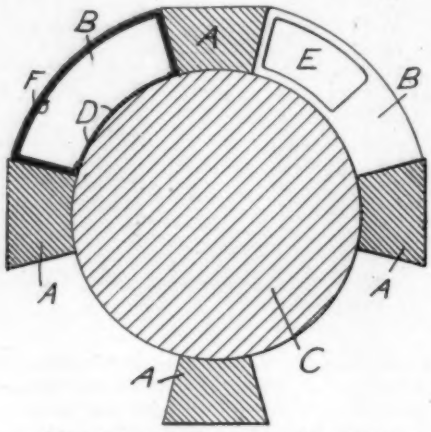
FIG. 1. FIG. 2.

PALMER'S LANDOLPHIA DECORTICATING MACHINE.

bed and as they pass under the rapidly revolving hammers the ends of the latter remove the bark by knocking it off in large or small pieces, or at least loosening it so that it is subsequently easily removed.

LUBRICATING BOX FOR CALENDER ROLLS.

THE accompanying drawing shows an end section of a calender roller equipped with a special form of lubricating device. The roller has mounted in connection with it the bearing blocks *A*, which are carried by the housings of the machine. The hollow boxes *B* are concentric with the roll neck *C* and are



DOOTSON'S CALENDER ROLL LUBRICATOR.

placed in contact with it, at the same time resting upon the blocks *A*. The whole or a portion of the inner faces *D* of the boxes *B*, which are in contact with the roll neck *C*, is perforated and lined with wire gauze, through which solid lubricant is fed. When the gauze is of comparatively fine mesh the lubricant passes less readily to the surface of the roller, and thus the whole of the lubricant is fed in required quantity to the roller by varying the mesh of the gauze. The boxes are filled with solid lubricant through openings *E*, which are covered by sliding doors. They are also provided with a lining of asbestos *F* to prevent the lubricant from melting too quickly. The practice of mounting a receptacle containing lubricant in contact with a revolving shaft is not new, but the feature of this lubricator is that the gauze comes in contact with the roller and lubricates it according to the size of the mesh. [Harold Dootson, Bullfield, Bolton, England.]

GIANT MAGNETIC COUPLINGS FOR RUBBER MILL.

IN the June number of THE INDIA RUBBER WORLD appeared an article illustrating and describing the Cutler-Hammer magnetic clutch and automatic safety brake, which has been installed in several rubber mills. The Woonsocket Rubber Co., of Woonsocket, Rhode Island, has recently installed in its plant five of these clutches, the largest magnetic couplings ever built. One is 72 inches in diameter, while the other four are each 68 inches in diameter. Their enormous holding power may be realized from the fact that the 72-inch size is capable of transmitting 44,600 pounds torque at one foot radius, or 849 horsepower at 100 r. p. m. The 68-inch couplings transmit 34,440 pounds torque at one foot radius, or 655 horsepower at 100 r. p. m.

The accompanying sketch shows diagrammatically the general arrangement of that part of the mill in which these couplings are installed. *A* represents a Rice & Sargent tandem compound, 20 x 40 x 60 steam engine running at 65 r. p. m. The large 72-inch coupling is shown at *B*, while *C* represents the safety brake, which is automatically applied to stop the mill the instant that the coupling circuit is broken. The construction and operation of these parts were explained in detail in the article referred to above. This coupling drives the mixer *D*. One of the 68-inch couplings is shown at *E*, driving the mixer *F*. This second coupling is driven from the engine shaft through gears *G*. At *H* is shown a Corliss tandem compound, 20 x 40 x 60 steam engine, running at 65 r. p. m. This engine drives three 68-inch couplings *I*, *J* and *K*, which drive respectively the calenders *L* and *M* and the refiner *N*.

The contract with the manufacturers of these magnetic coup-

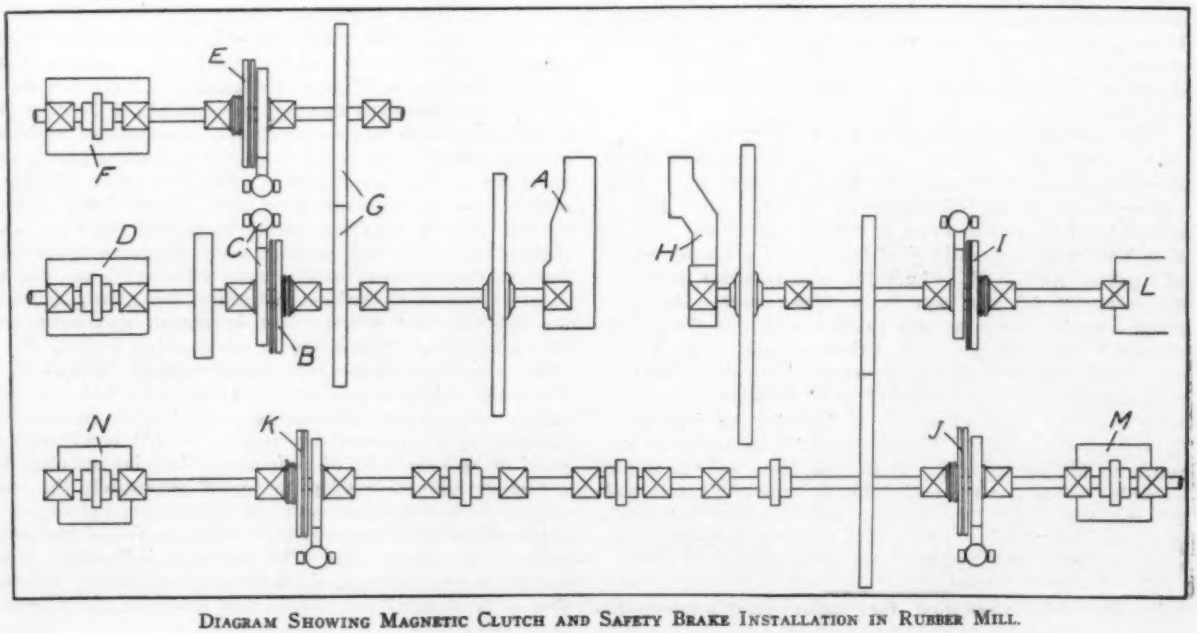
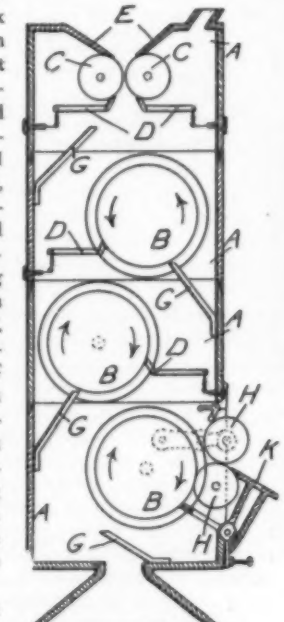


DIAGRAM SHOWING MAGNETIC CLUTCH AND SAFETY BRAKE INSTALLATION IN RUBBER MILL.

lings and safety brakes included a guarantee that, with one mill operating under load, the rolls must be brought to rest with a movement not to exceed 4 inches, after the operation of the safety switch.

NORZAGARAY'S COAGULATOR.

THE apparatus shown in the accompanying drawing was recently patented in England by L. Norzagaray, who has contributed to the rubber industry a number of machines, especially of the types used on the plantation. This machine is designed to rapidly coagulate all kinds of rubber latex and turn the product out in sheet form in one operation. It consists of a series of rectangular metal sections *A* placed one above the other. Each section contains a removable metal drum *B*, except the top one, which has a pair of laterally adjustable pressing rollers *C* and scrapers *D* mounted therein, immediately beneath the feeding hopper *E*. The metal sections *A* are placed over a fire place *F*. Smoke from the bottom chamber is guided by baffle plates *G* around that portion of each drum on which the latex is descending. The bottom section has a pair of corrugated pressing rollers *H* and a scraper (not shown in the drawing), which removes the rubber from the lower drum *B* and causes it to pass between the rollers *H*.



NORZAGARAY'S COAGULATOR.

As soon as the smoke is dense enough the latex is poured into the hopper *E*. It runs down on rollers *C* and is removed by scrapers *D*, falling on the upper drum *B*. Here it is further smoked and then scraped off, falling on the next drum *B*. This is repeated until it is scraped off the lower drum and passed between rollers *H*. The resulting corrugated sheet of rubber is guided out of the coagulator by a chute *K*.

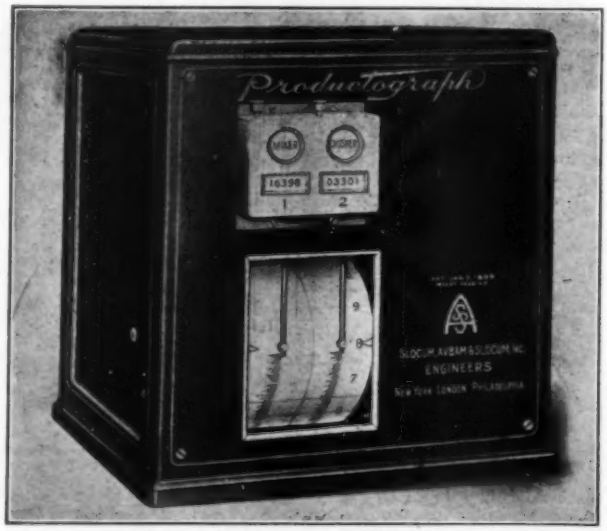
SAVED FROM LIGHTNING BY A RUBBER COAT.

There have been a good many authentic instances where men have been saved from the effect of lightning by being equipped with a pair of rubber boots, for a good pair of rubber boots or rubber shoes is effective insulation; and the New York papers recently cited the case of a worthy citizen of Goshen, New York, whose life was probably saved by the fact that he was wearing a rubber coat. During a severe thunder storm he was passing a church, the steeple of which was equipped with lightning rods. The steeple was struck and the lightning proceeded down the rods. The man was passing close by and received a considerable shock, being rendered unconscious for a time—but he was picked up and soon recovered. He attributes his escape from fatal result to his rubber coat. If he had been wearing a pair of rubber boots also the probability is he would hardly have felt the lightning. This, by the way, is not a bad talking point for retailers of rubber footwear and clothing, particularly where they can cite specific instances.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

THE PRODUCTOGRAPH.

ONE of the serious problems, if not the most serious, in general manufacturing industries is the inability to get absolutely accurate records of machinery operations. Dependence must be



placed on the reports of foremen and others which, being from human sources, are to an extent unreliable, and at times colored because of the very negligence of those that make them. The common method used to get a fair knowledge of the factory conditions is for the executive to make a periodical trip through the works. Such trips as a rule are made at stated hours of the day and every employe is on the *qui vive*. Machinery and men are alert and busy. There is a different story after the inspection tour.

A very definite solution of this problem is presented through a new electrical device now commercialized under the name of Productograph. This device is placed in the office of the executive and is operated electrically by the switch arrangement attached to the machines in the mill. The illustration herewith shows a two-needle machine.

The Productograph is usually placed in the private office of the owner or chief executive, where it shows at any moment of the day just what the machines in the factory are doing, and therefore any lax conditions that may be revealed can be corrected immediately. It shows the exact moment of starting of machines, stopping time, all stops during the day and their duration. It also shows rate of speed or production, with its variations. This is a most interesting feature because at certain hours of the forenoon and afternoon productivity reaches its highest rate. It is not constant during the working hours, nor is it equal between operators on like machines working under like conditions. The respective efficiency of machines and men is thus clearly shown by the Productograph charts. The instrument also counts the output, of whatever unit it may be.

The Productograph has been applied to many channels of industry and is adaptable to washers, mixers, calenders, spreaders, tubing machines, and tire wrapping machines. The makers claim that there is no machinery problem for which it is unfitted. As proof of its wide scope of usefulness, it is being installed at a dangerous railroad crossing, to record permanently the exact moment of lowering and raising of safety gates and ringing of alarm bell, while simultaneously charting the time of the train's passage over the crossing. This makes an indisputable record of value in possible litigation following upon casualties. (Slocum, Avram & Slocum, Inc., Production Engineers, 30 Chambers street, New York.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

PAVEA SYNTHETIC RUBBER.

THIS topic, which I referred to in my notes of May 1, continues to attract general attention. Financial and trade papers have expressed the opinion that it is the usual bogy which their readers can afford to ignore as of no importance. The facts, however, are against them, and there is no doubt that the samples sent out to the rubber manufacturers have had the effect of depressing the market for plantation rubber by at least 1d. per pound. I was informed by a raw rubber merchant in May that manufacturers would not follow their usual custom of buying two or three months ahead, as they preferred to wait for Pavea Synthetic Rubber, as it is termed. F. R. Muller & Co., of Liverpool, are the sole selling agents for Great Britain, and they have booked numerous orders for small trial lots as the result of past distribution of samples. These trial lots were to have been delivered in June or July, but I understand that it will be much nearer the end of the year before delivery can be made.

All sorts of rumors are extant as to the mode of making this rubber, the cost price of which is put as low as 4d. per pound and the selling price of which is fixed at 10 per cent below the market price of the day for first latex. Various vegetables and wild plants are mentioned as the source of the rubber. If, as stated, the output is to amount to 1,000 tons per week, it is evident that an enormous quantity of raw material will have to be handled. The process has been worked as a secret by Mr. Russell, the inventor, at the Brimscombe works near Gloucester, and it will continue to be worked as a secret process at the large new works near Manchester, all the officials having been sworn to secrecy and many of them being shareholders in the company, which is said to have a capital of £200,000. Some little comment having been aroused by a rumor that it is intended to make a public issue of shares before the manufacture has materialized, I may say that there is no intention of doing anything of the sort.

LEGAL CASE.

The trial brought by the Weber Rubber Co., of Manchester, against the Lancashire Revolving Heel Co., Limited, also of Manchester, was commenced before Justice Bray at the Manchester Assizes in May, but after the first day's hearing a private settlement was effected between the parties and the court proceedings were abandoned. I give herewith a brief summary of the case:

The Weber Rubber Co. made a large number of rubber heels in four qualities, priced at 1s. 2d., 1s. 4d., 1s. 5½d. and 1s. 6d. per pound, for the defendants, who posed to their customers abroad as manufacturers, though being in reality only merchants. At one period the plaintiffs' manager—now in the employ of the defendants—made a small allowance to settle a claim for defective deliveries. At a later date when the plaintiffs claimed payment for a large quantity of heels it was asserted by the defendants that numerous complaints had come from customers in Belgium, France and Italy and they sought to have the whole of the deliveries—amounting to many tons—charged at a job price of 8d. per pound. This the plaintiffs would not agree to, and action was brought for the amount due to them. The defendants then made a counter claim amounting to something like £400 for losses in cash, prestige, etc., on account of allowances made to customers and loss of trade. They stated that the goods were not up to the samples they had in their possession. As to the returned goods, samples of these were shown to the plaintiffs for the first time in court. The plaintiffs' case was that the goods supplied were made of the same quality as the samples and, in the words of their counsel, they submitted that the claim generally was a fraudulent one. Owing to the counter claim the plaintiffs' counsel took advantage of his right to have the defendants' case opened first, and it was after the somewhat severe cross-examination of their manager, not yet concluded, that overtures were made for a settlement. The terms which were agreed upon two days later were as follows: The defendants pay £250 for the plaintiffs' claim and £125 for costs; they abandon the counter claim of £420 and in addition take the stock of two or three thousand heels at a price agreed on. With regard to the business in the cheaper rubber heels, which are largely made in England, the bulk of it is done on the continent.

TIRE FABRIC MANUFACTURE.

Some months ago I mentioned the registration of two private limited companies, called Tyre Yarns, Limited, and Tyre Fabrics, Limited. To recapitulate briefly, I may say that the main object of these concerns was to supply the Dunlop Rubber Co. with tire fabric, an agreement being made with the Dunlop company, which appoints one director of each concern, the other directors all being men well known in the Lancashire trade. A new mill is now in course of erection at Castleton, near Manchester, and such good progress has been made that it is anticipated that production will commence before the end of the year. The yarns and fabric will be made from Egyptian cotton, and with regard to the disposal of the output I understand that business will be done if desired with other tire manufacturers, under the stipulation that cloth woven according to the special specification of the Dunlop company is not supplied to other firms.

LAWN TENNIS.

This is proving quite a boom year for dealers in lawn tennis requisites and in the opening weeks of the season it was found impossible to supply the demand for balls. The reason seems to be that the "masses" as well as the "classes" are now taking to the game, facilities being afforded by the municipal authorities. Hard courts are also being put down in the public parks for winter play, so manufacturers of balls will find a demand all the year around. In the announcements issued to the press by the authorities of the Rubber Exhibition it is stated that a tennis court made of plantation rubber will be a feature at the Agricultural Hall and that the leading amateurs and professionals will disport themselves upon it. Reference also is made to the great popularity of tennis. This notice does not make it clear whether tennis, the old game played by very few people, is meant, or whether lawn tennis is what the court is for. I am, however, informed by the Leyland & Birmingham Rubber Co., Limited, who are making the court, that it is for lawn tennis

THE VISCOSITY OF RUBBER SOLUTIONS.

This is a topic which has been discussed scientifically for some years, the view having been put forward that the viscosity of a rubber solution stands in intimate relationship with the quality and technical value of the rubber. Up to now, however, this form of laboratory procedure has not found any acceptance in trade circles. A recent paper on the subject by Mr. R. Gaunt, of the Imperial Institute, London, summarizes what has been done by others and the recent work of the author. Those interested will find it in the "Jour-

nal of the Society of Chemical Industry" of May 15. I refer briefly to some of the points established:

The viscosity of a rubber solution varies according to the particular solvent used. Fine Hard Pará after being washed for 45 minutes on the rollers lost a good deal of its viscosity, while *Castilloa* rubber subjected to the same conditions also lost viscosity, though not to the same extent. The author discusses the best method of graphically expressing the results obtained in viscosity tests, and among other subjects touched on is that of the effect of impurities in the solvent used, e. g., xylene in benzene. Such impurities are shown to affect the results, hence the necessity for employing pure solvents. A scientific dissertation leads up to the remark that it is difficult to obtain absolutely concordant results for the initial viscosities of solutions even of the same rubber and of the same concentration, unless one works under absolutely uniform conditions. All this and the absence of any claim on the part of the author that viscosity determinations are yet of technical importance indicate that in this matter we are very much where we were four years ago.

THE WEBER RUBBER CO., LIMITED.

As some little confusion may exist as to the identity of this firm, on account of the legal action reported in these notes and elsewhere, it seems advisable to clear things up. The Weber Rubber Co., Limited, is a firm formed a few months ago to take over the business of the Weber Rubber Co. (the plaintiffs in the action). The personnel and management are quite distinct, and it seems rather a pity that the new firm did not choose some other title. The Weber Rubber Co., Limited, whose works are in Weber street, Collyhurst, Manchester, makes a specialty of rubber heels, and the manager is Mr. Robert Flinn.

In this correspondence for May the position of Mr. E. S. Gray at the works of the Rubber Regenerating Co., Trafford Park, Manchester, was incorrectly given as under-manager whereas it should have been assistant in a particular capacity.

THE LONDON RUBBER SHOW OPENS AUSPICIOUSLY.

THE Fourth International Rubber Exhibition was opened in the Royal Agricultural Hall in London at 3 p. m. on June 24. The fact that Prince Arthur of Connaught was to make the formal opening attracted a very large number of people, and it was found impossible to seat them all in the main hall. Many more were accommodated in the galleries, and yet it was impracticable to find room for all those who applied for tickets and desired to attend. After the opening exercises the Prince witnessed the first game of tennis ever played upon a rubber court, and showed himself a most interested spectator. Sir Henry Blake, president of the exhibition, held a reception which was attended by practically all the leading rubber people of London and many from all over the world.

H. R. H. PRINCE ARTHUR OF CONNAUGHT.

Fifty-four different governments are taking part in this exhibition, the exhibits of Ceylon and Malaya being particularly fine. The Municipality of Pará has an attractive

SIR HENRY ARTHUR BLAKE, G.C.M.G.
President of the Exhibition.

MISS D. FULTON.
Secretary of the Exhibition.

A. STAINES MANDERS.
Managing Director of Exhibition.

display, which is also true of Amazonas, but the Federal Government of Brazil did not feel itself in a position at present to make any notable exhibit, which was a disappointment to those who recall the wonderful Brazilian contribution to the New York exposition in 1912. One feature which is attracting a great deal of attention is the rubber room equipped by the North British Rubber Co. The room is 15 x 20 feet and consists entirely of rubber. It has a rubber carpet, rubber wall paper, rubber tables and chairs, with rubber writing pads (the paper, however, is not rubber) and rubber ink stands and pen holders. This is hardly as elaborate as the wonderful rubber pavilions that Goodyear exhibited at the London and Paris exhibitions in 1851 and 1854, but suggests the notable Goodyear exhibit to those familiar with the history of the rubber industry and certainly to those people—probably very few in number—who may have seen those early displays of rubber possibilities.

The congress held in conjunction with the exhibition is proving extremely interesting, many of the large English manufacturers having agreed to let their experts attend and read papers or make addresses.

The day before the formal opening there was a luncheon given to the press, the menu of which was so highly exhilarating—though digestible probably only with men of long standing and much experience in the rubber trade—that it seems well worth reproducing. It runs as follows:

FOURTH INTERNATIONAL RUBBER EXHIBITION.
Patron: HIS MAJESTY THE KING.
ROYAL AGRICULTURAL HALL, LONDON, N.
PRESS LUNCHEON—23rd JUNE, 1914.

Hors d'Oeuvres

Pickled Rubber Seeds — Amazon Pelles
Congo Sardines — Java Paste
Deviled Herringbones

Soup

Mock Latex

Fish

Fillets of Sole in Funtumia Jelly
Castilloa Mayonnaise of Salmon
Lobster Salad—Hevea Dressing

Entree

Caoutchouc Lamb Cutlets

Cold Viands

Roast Beef and Coagulated Horseradish
Galantine of Amazon Veal
Wickham Hard Cure York Ham
Pará Braised Ox Tongue
Indo-China Chicken and Kuala Lumpur Ham
Pressed Beef (free from tackiness)

Salad

Ceylon Tomatoes, Brazil Dressing
Green Salad (Pinto Process)
"Fine Hard" Potato Salad
Gum Elastica Beetroot

Sweets

Apple Tart and Rubber Milk
Pneumatic Liqueur Jellies
Scrappy Mystery
Petit Fours (vacuum dried)
Mani-hot Ice Pudding
Dividend Dates
Malay Cheese
Coffee
Stewed Synthetic Fruit
Plantation Biscuits
Sao Paulo

The interest in the second day of the show was divided, between wild and plantation rubber, the forenoon being known as "Brazilian Day" while in the afternoon a reception was held by the Straits rubber associations. On the afternoon of June 26 the Lord Mayor and the Sheriffs of London paid an official visit and looked over the exhibits with great interest. This was known as "British Malaya Day." June 27 was called "Belgian Day," the exposition being visited on that day by the Belgian Colonial Minister and the Belgian Minister to England.

The delegates to the exhibition permitted themselves a little relaxation on the 28th, being provided with a special Pullman train to take them to Brighton, where both breakfast and dinner were served at the Hotel Metropole. June 29 was "Ceylon Day," and a banquet was given by the French Commissioners. The Rubber Congress in connection with the exhibition held its opening session on June 30; and a reception was given by representatives of the French Government, the feature of the reception being the visit of the French Ambassador; while in the evening the Rubber Growers' Association, of London, held a reception.

On July 2, which will be known as "Soudan Day," there will be a reception by the Commissioners from the Soudan. On the evening of July 3 there will be a notable banquet, to be attended by practically all those taking any important part in the exhibition.

THE INDIA RUBBER WORLD is represented in a convenient place at the exhibition, where copies of the paper in liberal quantities are on sale, and all the publications issued from this office on exhibition. This exhibit is in charge of Mr. Edward F. Pfaff.

BRITISH EXPORTS OF RUBBER MANUFACTURES.

	1911.	1912.	1913.	To April, 1913.	To April, 1914.
Waterproofed wearing apparel.	$3,044,500	$4,066,970	$5,108,785	$1,859,750	$1,829,150
Boots and shoes—Value	789,085	668,825	690,715	192,425	213,570
Tires and tubes	5,775,000	6,280,000	6,461,995	2,569,645	2,052,210
Cables insulated	5,832,540	10,181,950	15,249,620	5,400,755	1,762,950
Other manufactures of rubber	9,291,500	8,884,260	8,282,870	2,792,290	2,523,215
Total value exports	$24,732,625	$30,082,005	$35,793,985	$12,814,865	$8,381,095

In the city of Birmingham, England, 2,380 men and 1,072 women are employed as rubber workers.

BRITISH INVESTMENTS ABROAD.

In an analysis of the distribution of British capital among foreign investments, an English authority shows that the grand total is about 18 billion dollars, of which about one-half is in the British possessions, and one-half in foreign countries. As to the class of securities, about 5 billions are in government loans and 7 billions in railways, while the remaining 6 billions are in various forms of financial and industrial investments. This last-named amount includes the following items:

Iron, coal and steel	$118,598,575
Mines	1,327,527,670
Motor traction	5,153,625
Nitrate	56,563,330
Oil	197,477,700
Rubber	199,438,000
Tea and coffee	109,218,860

Rubber thus seems to take the highest position among investments of its class, and to have almost twice as much capital engaged in its production as tea and coffee together.

MANDLEBERGS PAY 15 PER CENT.

The profits of J. Mandleberg & Co., Ltd., Manchester, for 1913, amounted to about $300,000. A dividend of 15 per cent. has been declared upon the common stock; while the balance carried forward is equal to about $110,000.

WILL OF THE LATE MR. HEILBUT.

Mr. Samuel Heilbut, of the firm of Heilbut, Simons & Co., rubber merchants, of London, who died in that city on April 3, left an estate valued at £767,157. After providing handsomely for his widow and various other members of his family, he left large bequests for a number of charitable institutions. Among these bequests were one of £15,000 to the Guildhall School of Music, for the establishment of the "Sam Heilbut" Scholarships; one of £5,000 to the Board of Guardians for the Relief of the Jewish Poor; several of £1,000 each to different hospitals—mostly Jewish—and a number ranging from £500 to £200 to different Jewish synagogues, homes and schools.

AN ENGLISH VIEW OF RECLAIMED RUBBER.

An estimate by W. F. de Bois Maclaren places the world's annual collections of old rubber goods at 400,000 tons and the total of scrap rubber at 280,000 tons. This quantity would yield 140,000 tons of recovered rubber compounds. On the basis of 40 per cent. of actual rubber in the compounds, the quantity of crude material they would displace would be only 56,000 tons.

Plantation rubber, it is urged, would suffer no more from the use by manufacturers of a certain quantity of reclaimed rubber than it now does from the 150,000 tons of mineral fillers used as loadings in the manufacture of rubber goods. "Why," it is asked, "should any one be alarmed if rubber manufacturers use less of mineral loadings and use recovered rubber compounds largely in place of them?"

TENNIS BALLS IN BRITISH TOURNAMENTS.

Announcement is made in an official journal that the Council of the British Lawn Tennis Association proposes annually to authorize such makes of balls as it is satisfied are suitable for use at open meetings, matches or other competitions. Manufacturers who desire to have their tennis balls authorized have been invited to make application to the secretary of the Lawn Tennis Association, enclosing with such application a list of tournaments, matches or competitions at which their make of ball has been used during the last two or three years. The number of makers thus authorized will not be definitely limited, though it must necessarily be restricted to the leading manufacturers. Having given the hallmark of authority to these makers, liberty of action to tournament and club committees will be given to choose the ball they may deem best among those officially sanctioned.

NEW RUBBER COMPANY AT LEICESTER.

The Leicester Rubber Company has been registered with a capital equaling $100,000, to carry on the business of J. C. Burton and H. H. Burton in that city as manufacturers of thread, cord and tires.

RUBBER GROWERS' ASSOCIATION.

The council of the above association now includes about fifty members, the chairman being John McEwan, and the vice-chairman George Croll. Among the other members are: Sir John Anderson, Sir Edward Rosling, Sir Frank Swettenham, Sir William Treacher, as well as Arthur Lampard, Richard Magor, Noel Trotter and Herbert Wright.

LECTURES ON RUBBER IN LONDON.

A course of ten lectures on rubber has been organized by the London County Council. In taking the chair at the first lecture (by Mr. W. T. Gibson), Mr. Herbert Wright congratulated the council on the step taken, which he suggested might be repeated in Manchester, Edinburgh and other industrial centers, where there are notable rubber manufacturing and machinery firms. He added that he believed increased supplies of rubber would create improved demands for that product, especially if the public were brought to "think" rubber and take an intelligent interest in its uses and general advantages. It was, he considered, high time for the British government to stipulate for the use of plantation rubber when inviting public tenders for manufactured articles.

MOTORCYCLES FOR RURAL POSTMEN.

The British post office department is preparing to experiment in the use of motorcycles on rural delivery routes, starting with twenty machines having side car attachments. It is thought that in this way two deliveries a day can be made in country districts where only one is now possible. Motorcycle manufacturers predict that within a year the lower cost of upkeep will have led to the complete displacement of the horse by the motorcycle in the postal service of the United Kingdom.

BRITISH CONSULAR REPORT ON TRADE OF PARA.

A BRITISH Consular Report, recently published, deals with the trade of Pará for the years 1910-12 and part of 1913. Though its contents are in great part of a general character, they deal specially in various points with rubber. The report emanates from Consul G. B. Michell.

Pará, as it is well known, is of capital importance as a receiving and distributing center for northern Brazil. Until the rubber boom of 1909-10, the collection and export of rubber was only one of the industries of Pará, but the inflation which resulted led to the practical abandonment of every other activity, all minds being absorbed by rubber. The panic caused by the fall in the price of rubber is a matter of trade history. Most of the money gained during the days of great rubber profits was taken to Europe. Some was invested there, but very little remained in Brazil.

PARA IMPORTS.

The oversea imports into Pará reached the following quantities: 1911—283,613 tons; 1912—275,383 tons; 1913—221,000 tons. Of these quantities coal represented: 1911—154,045 tons; 1912—154,810 tons; 1913—125,000 tons.

A comparison of the imports of other goods from various countries shows the following:

From—	1911.	1912.	To Oct. 31, 1913.
United Kingdom .....*tons*	32,229	21,953	23,000
United States	26,012	32,708	24,000
Portugal	17,718	16,862	14,000
Germany	17,188	15,222	13,700

Portugal sends to Brazil, principally, wine, onions, olive oil, brandy, preserved provisions, fresh fruit and vegetables.

PARA RUBBER RECEIPTS.

A comparative table of entries of rubber from the Amazon Valley into Pará shows:

From—	1911.	1912.	To Oct. 31, 1913.
State of Pará .....*tons*	9,049	7,072	5,243
State of Amazonas	11	80	....
State of Matto Grosso.....	61	125	112
Acre	6,209	8,291	6,358
Bolivia	2,390	2,758	3,170
Total	17,720	18,326	14,883

MANAOS EXPORTS.

The quantities of rubber exported from Manaos, of all grades, were: In 1911—20,187 tons; 1912—18,690 tons.

CAUSES OF DEPRESSION.

Among the causes assigned by Consul Michell for the present conditions at Pará and Manaos are: (1) Eastern competition; (2) Corner in Europe; (3) High sea and river freights; (4) High cost of living and consequently of production.

COST OF PRODUCTION.

While rubber costs the original gatherer nothing, being wild, and the appliances used primitive, it has to supply an expensive living to many hands before reaching the consumer. Advances to the rubber gatherer carry various burdens, to cover the credit and other risks. Another item of cost is constituted by the fact that the state government requires all rubber to be packed in boxes of a certain size, the wood for which is imported from the United States, although the Amazon district contains vast forests.

The report includes many interesting tables, which, though mainly affecting Pará, cast a side light upon Brazilian conditions in general.

The Olympia Automobile Show, London, will take place this year, November 6 to 14.

THE RUBBER TRADE ASSOCIATION OF LONDON.

Since its inception in 1913, the following changes have taken place in the official staff of the above association: Edward Berg has succeeded Samuel Figgis as chairman; Andrew Devitt has replaced Harry Symington as vice-chairman. In most other respects the list published in THE INDIA RUBBER WORLD of July 1, 1913 (page 537) still holds good. New features are the appointment of a London panel of 40 arbitrators and of a Liverpool "Quality Panel" of 6 members. William G. Briggs retains the office of secretary.

The rules from which an extract was published have been modified in certain instances, the changes having come into force March 1, 1914. These alterations chiefly refer to delivery, weights and default in deliveries.

ACETONE FROM NATAL.

Efforts are being made in England to induce the British War Office to use the acetone manufactured from Natal wattle wood in place of that from Bosnian beech. The latter gives acetone of 78 per cent. purity, while the Natal article gives an 80 per cent. quality and could be supplied at the same price as the above-named lower grade. Acetone is a solvent for rubber resins and is used in rubber extraction and in the analysis of rubber.

TECHNICAL PROGRESS AFFECTING RUBBER DURING 1913.

Two reviews have lately dealt with the above subject. One is by Dr. Wurm, of Berlin, and the other from the pen of Dr. Friedrich Arndt, of Birmingham. Among the experiments of Professor Harries, referred to in the former, are those dealing with the influence of halogen upon rubber, the experimenter finding that the hydro-halogenides of the various kinds of rubber are very similar.

With respect to vulcanization, most experts are agreed that there is a firm chemical combination, and not a mere absorption of the sulphur. Stern and Bernstein have treated this matter in detail, the former endeavoring to isolate certain combinations.

DIRECT DEFINITION OF RUBBER.

Considerable trouble was taken last year in seeking a practical method for the defining of the substance of rubber. According to Dr. Wurm's views, one reason of the difficulty attending such a definition is that we are insufficiently acquainted with the dimensions of the rubber molecule and therefore cannot draw up any exact formula. Owing to the diverse compositions of the various kinds of rubber, differences must occur in the products of reaction; the quantity of bromine absorbed largely depending on the concentration, temperature and length of exposure. Yet new forms of calculation are constantly being introduced. The definition of the substance of rubber can be much more accurately effected indirectly by the determination of all other components.

ARTIFICIAL RUBBER.

During last year many new methods for producing artificial rubber were published and patented. The opinion is expressed that artificial rubber has no chance of even partially conquering the market in the near future. Dr. Wurm adds that the cost of manufacture of synthetic rubber is high and the quality so poor that it cannot stand comparison with even the lowest grade of natural rubber.

ALBUMEN.

Dr. Arndt states that the part occupied by albumen in crude rubber has been, during last year, the subject of much investigation. The co-efficient of vulcanization seems to be higher the larger the proportion of albumen present. Latex, immediately after the tapping, is of a weak alkaline character, but soon becomes acid. It is not difficult, it is added, to make artificial latex of isoprene and albumen and then to coagulate it by acid and by exposure to the air (the carbonic acid in which perhaps leads to coagulation), or by salts, as in the Colosseus process. It is a question what acid and what process are best as substitutes for self-coagulation.

MEETING OF GERMAN RUBBER MANUFACTURERS' ASSOCIATION.

In his presidential address at the recent meeting of German rubber manufacturers, Kommerzienrat Hoff called attention to the fact that the reduction in price in the principal articles of the rubber industry is greater than any economy effected through the lower price of rubber. He predicted that unless a change took place the results of 1914 would be more unsatisfactory than those of 1913.

Other speakers confirmed these views, pointing out the importance of reliable price calculations and urging that manufacturers should not hesitate to refuse unprofitable business, even when presented under alluring conditions. No order should be executed without its calculations being strictly verified.

Another point urged was that it would be unwise to base prices on any reductions in the quotations of rubber without taking into account the fact that general expenses and the cost of manufacture are constantly increasing.

In view of the expiration within a few years of existing commercial treaties with various foreign countries, the question of new treaties of that character was referred to as a point of importance for deliberation.

Another subject dealt with was the division of the rubber industry into groups, each with its president. In cases of necessity the members belonging to the group could be convoked for the discussion of important matters. In this way the development of the industry would be facilitated for the general benefit.

RUBBER IN LOCOMOTIVE BUILDING.

A German paper speaking of the use of mechanical rubber products in the construction of locomotives in Europe says that it is much larger than is generally known. A visit to a locomotive factory will show an unlooked for consumption of rubber and asbestos packing and insulating material. Hose takes a prominent position in the form of tender and coupling hose, brake and heating hose, as well as that for the conduct of water and gas. Both smooth and spiral kinds are used, with thick and thin sides, and of standard dimensions. Smaller locomotives and those for narrow-gage lines of course require smaller sizes of hose in their mechanical equipment.

An interesting feature of locomotive manufacture is the fact that specially large engines are required in North America, Argentina and Spain. In Europe coupling and heating hose is usually about 2½ inches internal and 3½ inches external diameter, with spirals far apart. The various pressures to be withstood call for differences in the mode of construction.

Besides hose, packing rings of rubber and asbestos, as well as asbestos slabs and loose flanges, are used. Asbestos cushions serve to isolate steam, particularly superheated steam, in the cylinders and pipe connections.

Many articles, particularly in rubber, are largely used in the manufacture of passenger and freight locomotives and tenders. In these lines, the car builders carry large and fully assorted stock, such as do makers of mechanical rubber goods.

RECONSTRUCTION OF METZELER & CO., MUNICH.

A statement of the receiver in the case of Metzeler & Co., Munich, shows that a strong syndicate is being formed by the German banks interested, with a view to the reconstruction of the above concern under guarantees.

GERMAN RUBBER EXPORT STATISTICS FOR 1913.

ACCORDING to the official German statistics for 1912 and 1913 (converted into American equivalents), the following are the principal features of rubber goods exports:

GERMAN RUBBER GOODS EXPORTED.

	1912		1913	
	Tons.	Value.	Tons.	Value.
Soft rubber goods...	16,934	$27,224,250	18,393	$29,090,750
Hard rubber goods...	1,342	2,903,500	1,313	2,980,250
Treated with rubber.	612	1,223,250	804	1,698,500
Total	18,888	$31,351,000	20,510	$33,769,500

Manufactures of soft rubber thus form about 90 per cent. in quantity of the German rubber goods exported.

The total German exports for 1913 of rubber goods, exceeding 20,000 tons, included the following articles:

	Tons. About	Principal Outlets.
1. Motor Vehicle Tires.....	3,000	France 20 per cent., Great Britain 18 per cent.
2. Rubber combined with fabric	4,000	Great Britain 45 per cent.
3. Rubber hose not elsewhere specified	1,600	Great Britain 13 per cent., Austria 12 per cent., Argentina 12 per cent., Italy 10 per cent.
4. Textile goods combined with rubber thread and rubber thread combined with textiles or not.....	1,600	Great Britain 60 per cent.
5. Bicycle tires	1,200	Netherlands 27 per cent., Denmark 22 per cent., Great Britain 20 per cent.
6. Non-motor vehicle tires	800	Great Britain 30 per cent.
7. Rubber tubes for tires of other than power vehicles	400	Netherlands 25 per cent., Great Britain 22 per cent.
8. Rubber tubes for use in tires of power vehicles.	230	Great Britain 30 per cent., Argentina 15 per cent.
9. Soft rubber paste and rolled sheets, etc.....	1,000	France 40 per cent., Austria 20 per cent.
10. Driving belts of fabric with rubber	1,000	Great Britain 35 per cent.
11. Steam packings, etc....	4,500	
Others articles	1,180	

Total of principal articles 20,510 tons.

The separate German exports of hard rubber goods are shown for 1913 as 1,313 tons. Of this quantity, about 20 per cent. went to Great Britain and 12½ per cent. to France. This figure shows a slight reduction from that of 1,342 tons recorded for 1912.

In the above table only the largest outlets are shown.

GERMAN RUBBER TRADE IN 1913.

The annual report of the Berlin Chamber of Commerce for 1913 states that the German tire manufacturers have had reason to complain of the operation of the guarantee system as applied to automobile and bicycle pneumatic tires; while inquiry has been on an increased scale for solid tires for motor trucks, autobuses and electric cabs. The requirements as to guarantee of the omnibus companies, the largest consumers of solid tires, are, however, such that manufacturers' profits have been cut down.

Business in mechanical rubber goods during the first nine months of the year was satisfactory, in consequence of the large purchases by the railways, navy and shipbuilding yards. Trade during the last three months of the year fell off to such an extent as to cause reduced working hours in the factories specially devoted to mechanical products.

In rubber shoes business was unsatisfactory during the greater part of the year, but the heavy snowfall in the latter part of December gave dealers an opportunity of clearing their stocks, with the result of a fairly satisfactory total for the year's trade.

Export business showed in some cases an increase, particularly in hose for mechanical purposes. Reduced exports were, however, recorded for bicycle tires, belting, rubber shoes and for nearly all kinds of hard rubber goods.

Owing to the depression marking the last quarter of the year, the number of unemployed rubber workmen at the close of 1913 was larger than is usual at that period.

In waste rubber the year was disappointing, chiefly owing to the large quantities of crude rubber which came on the market. The absence of the normal American demand for old shoes was one of the causes of the depression which existed. The increased number of hospitals led to a development in the trade for medical supplies.

GERMANY'S COMMERCE.

Consul General Robert P. Skinner of Berlin has reported the provisional results of the German trading returns for the last two years. A comparison of the figures for 1912 and 1913 shows that in the latter year the combined total of imports and exports was about 6 per cent. in excess of those of 1912. The actual figures are:

	1912.	1913.
Imports	$2,544,549,868	$2,545,505,676
Exports	2,131,718,400	2,399,184,228
Total	$4,676,268,268	$4,944,689,904

The following are the figures more directly referring to rubber:

	1912.	1913.
Crude rubber total exports.....*tons*	4,943	3,971
Crude rubber exports to the United States.....	2,671	2,001
Imports of India rubber goods.....	4,441	4,191
Exports of India rubber goods.....	18,276	19,708

BAYER COMPANY TRANSFERS LIBRARY.

The "Farbenfabriken" (formerly Friedr. Bayer & Co.), of Elberfeld, is removing its Bureau of Information to the factory at Leverkusen, at which town the "Kekulé" library will also be located. Both sections will be under the direction of Dr. Gartenschlaeger.

NEW DIRECTOR GENERAL OF EXCELSIOR WORKS.

Herr Siercke, hitherto director of the Excelsior Rubber Works, Hanover, has been promoted to the office of Director General, vacated through the death of the late Kommerzienrat Heise.

Some Rubber Interests in Europe.

THE FOREIGN COMMERCE OF FRANCE.

BOTH in quantity and value the total foreign commerce of France for 1913 broke all previous records. The imports equaled $1,642,117,000, as compared with $1,588,553,000 in 1912; while the exports represented the equivalent of $1,326,950,000, against $1,295,528,000 in the previous year. Thus the grand combined trading totals for the two years were respectively, $2,884,081,000 and $2,969,067,000.

The analysis by Consul General A. M. Thackara, of Paris, of the results for 1913, shows that the United Kingdom heads the list of countries exporting to France, with about 14 per cent., Germany coming next with 13 per cent., while the United States takes third place with 10½ per cent. The United Kingdom also takes the highest place in exports from France, with 21 per cent., Belgium following with 16 per cent, Germany with 13 per cent. and Algeria with 8 per cent.; the United States taking fifth place with 6½ per cent.

The following results are shown by the report as to rubber:

	1912.	1913.
Crude rubber, imports.....*tons*	19,111	17,440
Crude rubber, exports.....	12,674	10,687
Imports of rubber manufactures.....	3,617	3,348
Exports of rubber manufactures.....	6,123	6,930
Crude rubber exports to the United States	3,626	2,183
Crude rubber imports from the United States $1,375,125		$1,370,493

INCORPORATION OF A FRENCH RUBBER MANUFACTURING COMPANY.

It is reported that the firm of Hirtz, Michel-Levy & Bloch, of Paris, manufacturers of rubber goods, contemplate incorporation under the style of the "Dynamic" company. They will still continue to make pneumatic tires, air chambers and tires for heavy loads at their Paris factory.

THE NETHERLANDS A GOOD MARKET FOR RAINCOATS.

Vice Consul Dirk P. DeYoung, stationed at Amsterdam, reports that the climate of the Netherlands necessitates the frequent use of waterproof garments and that while Great Britain and Germany have in the past supplied the demand for such articles, none of which are manufactured in that country, American concerns have recently met with success in their introduction and sale. He states that purchases are made largely through selling agents, who operate on a 3 to 5 per cent. basis; that there are no department stores in the Netherlands, but that clothing concerns are fairly numerous in the larger cities. A list of the clothing stores and selling agents in Amsterdam may be obtained from the Bureau of Foreign and Domestic Commerce, Washington.

NEW DUTCH CABLE WORKS.

A company has been incorporated at the Hague for the purpose of erecting a factory at Delft, 10 miles from Rotterdam, to manufacture underground electric cables of high, as well as low, voltage. The capital equals $800,000, of which about one-third has been issued. It is anticipated that the product will at first represent $450,000 a year, but may be increased later on. It will be the only factory of its kind in Holland, all cables having now to be imported.

NEW RUBBER SHOE FACTORY IN SWEDEN.

A new company has been formed at Vienna for the purpose of establishing a rubber shoe factory at Helsingborg, Sweden, under the style of "Tretorn." The capital is about $40,000.

TIRES AT THE BALTIC EXHIBITION.

Details of the Baltic Exhibition at Malmö, Sweden, show that 80 per cent. of the tires on motor vehicles are "Continental," while the remaining 20 per cent. are distributed among four other makes. Both pneumatic and solid tires are represented.

TIRES AT THE COPENHAGEN EXPOSITION.

Out of 205 mounted pneumatic tires exhibited at the recent Copenhagen exhibition, 120 were of the Dunlop make, while the remainder were distributed among 16 other makes.

DANISH EXPORT OF SCRAP RUBBER TO AMERICA.

According to consular returns, the value of scrap rubber exported to the United States from Denmark was in 1912, $11,632, and in 1913, $30,527.

AVIATION IN RUSSIA.

Russian aviation in 1913 was notably successful; the number of dirigible airships being now fourteen, including a Russian one built at the government factory of Ishora near St. Petersburg. Besides this factory, two other large concerns are building airships, the trials of which are said to have given encouraging results. The most important flight for 1914 will be that from St. Petersburg to Sebastopol, the distance of about 1,200 miles being increased through deviation to about 1,500 miles. The time allowed by the donor of the prize is only 24 hours.

RUSSIAN IMPORTS OF AUTOMOBILES.

Statistics indicate that while in 1901 Russia imported only 40 automobiles, value $21,150, the imports of 1912 amounted to 2,880 cars, value about 5 million dollars; in addition to 575 frames, representing about $300,000.

PORTUGUESE MOTOR CAR IMPORTS.

Portuguese imports of motor cars and trucks increased from 286 in 1911, valued at $212,000, to 522 in 1912, valued at $353,000. Carriage builders have now commenced to build the chassis in Portugal, importing the accessory parts.

AUSTRALIA'S IMPORTS OF RUBBER GOODS.

The imports of manufactured rubber goods into Australia, as recorded by Consul General John F. Bray, show a value of $4,723,744 for 1912 and $4,971,563 for 1913.

TWENTY YEARS' FLUCTUATIONS IN RUBBER.

An interesting wall table has been issued by the Credit Colonial & Commercial of Antwerp, which has continued the former business of Messrs. L. & W. Van de Velde of that city. Quoting a few of the figures, it will be seen that the world's production of rubber has grown from 32,418 tons in 1894 to 112,170 tons in 1913, while consumption has increased from 31,131 tons to 104,255 tons. The graphic chart which accompanies the statistics illustrates the fluctuations between 1s. 9d. (42.57 cents) in 1913 and 12s. 4½d. ($3.01) in 1910. During the 20 years referred to, Antwerp importations have risen from a yearly quantity of 275 tons in 1894 to 5,040 tons in 1913, while the total for Europe has increased from 21,479 tons to 78,544 tons. United States imports for the same time show an advance from 14,643 tons to 51,480 tons.

NEW AUSTRIAN ELASTIC GOODS MANUFACTURERS.

A firm under the style of Teubner, Pieck & Co. has been formed at Vienna, as a branch of the firm of the same name at Grottau, Bohemia, manufacturers of elastic narrow goods.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

THE AKERS MISSION (*Requiescat in Pace.*)

From an Occasional Correspondent.

THE readers of THE INDIA RUBBER WORLD will recall the predictions voiced by this correspondent as to the fate that awaited the Akers Mission to the Amazons. Unfortunately for those responsible for its creation, the so-called Akers Mission is dead, as dead as can be.

But the many curious incidents which occurred during the development of the said mission; the extravagant ideas which brought it into being; the mystery which surrounded its economic backing, and other issues, are occurrences which, in my opinion, greatly interest the rubber community, and I feel it my duty to place them before your readers.

It is said that Mr. Percival Farquhar, in his endeavors to find the practical salvation of the large capital invested in the Madeira-Mamoré railway and the Pará Port Works, conceived the idea of introducing into the Amazons the Eastern methods of tapping and preparing rubber, so as to increase the output of rubber fivefold without extra cost of production.

No sooner did he do this than it was communicated to the Booths—the concern which has exploited the transatlantic mercantile marine portion of the Amazon's trade for the last three scores of years. Suarez Hermanos—also interested in the river traffic of the Amazons, by virtue of having acquired a portion of the capital of the Amazon River Navigation Co.—were also approached on the subject, and the pact was formed. Mr. Farquhar was to furnish the genius and leading spirit of the undertaking; the Messrs. Booth were to furnish an expert on East Indian rubber planting, whilst the Suarez were to furnish experts on Amazon rubber exploitation.

Having settled the matter on this basis, the question arose as to who should put up the money. Well, for a time these several enterprising firms posed as the great benefactors who were generously doing all of this for the Amazons; until it turned out very publicly that the Brazilian treasury had supplied the funds to carry out the would-be philanthropic intentions of the group. Not that the Brazilian Government was at all confident of the results of the said mission; quite the contrary. But because the Minister of Agriculture of Brazil had made up his mind not to allow his department to be unjustly accused of short-sightedness or meanness of any sort in any project for benefiting the rubber industry of the Amazons.

According to this arrangement, therefore, the Messrs. Booth selected Mr. C. E. Akers to fill the post of expert in the Eastern rubber plantation industry. Right here it should be said that Mr. Akers has been favorably known to the literary world as the writer of the "History of South America," and as correspondent of "The Times," in Chili and Peru. Next in order came Mr. F. Lugones, who had also successfully managed rubber *seringaes* in Bolivia belonging to the firm of Suarez Hermanos. Then came a Mr. Ufenast, whose rubber knowledge is about equal to that of Mr. Lugones.

The Government of the State of Pará was also invited to participate in the works of the mission, and the late Dr. J. Huber was commissioned to go as far as the East—wherever the Akers Mission went. But Dr. Huber only accepted the commission on the condition that he should report his views entirely by himself and to his Government alone. Hence the very able and comprehensive report rendered by him to the Governor of Para on his return from the East.

Those who know the Amazons and read Mr. Akers' report could not but feel sceptical as to his knowledge of rubber even to a slight degree, for here was a so-called expert who came forward as a champion of the overhead system of tapping when practical experience has shown to us in the Amazons the disastrous results of such practice. Then here was the same champion trying to convince the Amazonian contingent that a much greater quantity of rubber could be produced, for the same cost for labor, if the Eastern method—the herringbone system—were adopted, and if a gouge were used instead of the classic Para chisel or *machadinha*.

Fortunately for the Amazons, there were people in the Madeira River country who volunteered to place some of their *seringaes* at the disposal of Mr. Akers and his Mahometan assistants. And, as good care was taken to work with native tappers, and by native methods, one *estrada* for each one handed over to Mr. Akers, under perfectly equal conditions, it was soon proven, beyond the doubt of even Mr. Akers, that by his method the trees yielded larger quantities at first but very soon began to show signs of exhaustion; and in less than three months it was proven that, whilst the latex gathered by tapping after the East Indian method was greater in quantity, the dry rubber was considerably less than that obtained per tree by the native tappers after the native method of extraction and smoking over burnt nuts and palms.

It was enough. Mr. Akers made himself quite scarce. It is reported he had a row with Mr. Farquhar, and the latter requested the Federal Government to rescind the contract to carry out further experiments in the Upper Amazons. But the Federal Government had already paid the sum of 1,000 contos—$333,333.00, and is the loser by that much. But what a lot of experience it has gained. And how many columns of abuse it has escaped just for allowing itself to be duped into one of the most disastrous attempts ever made to prove that *cheese can be made of chalk!*

But let us stop here and not trample upon the fallen. The Akers Mission is dead—may it rest in peace! And may Brazil be delivered from another such philanthropic outburst on the part of historical writers, aided and abetted by company promoters.

Verily, Mr. Akers should now write the history of the whole occurrence and acknowledge that the Amazon has nothing to learn from the East whilst the East could take many leaves out of its books and be the happier and safer for the extra knowledge.

Pará, Brazil, May 25, 1914. X. C. J.

WHAT SICILY WANTS IN RUBBER.

Sicily offers a fair field to manufacturers of rubber goods, especially in hose suitable for use by wine distillers. The preferred type is that having a flexible, spiral metal cover, and of this variety 60 per cent. of the quantity in use is of Italian manufacture, and 40 per cent. foreign. The American spiral nickel-armored hose is considered superior to the Italian hose of the same type, which rusts easily. Hose ½-inch to 2 inches in diameter is sold in 50-foot coils though dealers would prefer lengths of 100 feet, which involve less waste when retailed in pieces of 2 to 5 feet. American hose is purchased through London supply houses, the government duty being 80 lire per 100 kilos ($7 per 100 pounds). There being no difference in price between Italian and foreign makes, and American goods being preferred, there seems no reason why American manufacturers should not secure a large proportion of the Sicilian trade.

Rubber tubing for conducting gas, etc., is supplied in part by Italian manufacturers and in part by Germany. It is delivered, including duty, for 5 to 20 lire per kilo (44c. to $1.75 per pound), according to quality and size.

The most popular tires in this market are of French, German and Italian makes, and Russian and Austrian rubber shoes have the preference, on account of their weight and durability, though American shoes are quite popular because of their lightness and superior finish. The duty on rubber shoes is 1.25 lire (24c.) per pair, and cardboard boxes should not be used in packing as this increases the duty about 2c. per pair, an additional assessment being levied on posters or other advertising matter of .75 lire per kilo (6.57c. per pound).

Some Rubber Planting Notes.

TECHNOLOGICAL STUDY OF CONGO RUBBERS.

IN a communication to the "Bulletin" of the French Colonial Office, Messrs. C. Cheneveau and F. Heim report on two samples of Congo rubber which they had recently examined.

One of them, *Funtumia elastica* from the Oubangui district, was found when slightly vulcanized to be less tenacious, less "nervy" and less elastic, but softer and more extensible than fine Pará hard cure, coming nearer to Pará soft cure. If it was vulcanized to a further degree, which increased its nervosity and elasticity, it seemed to be more nearly equal to Pará hard cure.

The other sample was of a so-called "pounded" rubber sent by M. Baudon, colonial administrator, who described it as having been extracted by pounding from the roots of dwarf varieties of *Landolphia ovariensis*. Its technical qualities corresponded with those found in vine rubbers.

After slight vulcanization, it was much softer than fine Pará hard cure—very extensible, but less tenacious, "nervy" and elastic. Vulcanization with a higher proportion of sulphur caused it to gain in elasticity and nervosity.

Compared with *Landolphia ovariensis* from West Africa, collected by M. Yves Henry, under the same conditions of vulcanization, it became a little softer, but also a little less "nervy" and elastic.

TRIALS OF MANURING RUBBER.

The German Colonial Office has issued a report of the experiments in manuring carried out in the German African colonies in 1912 and 1913, as well as of those in contemplation for 1914. A broad distinction is made between "one-year cultures" and "permanent cultures." In the former group are included: cotton, maize and potatoes, as well as six other vegetables and cereals; the second comprising rubber, coffee, cocoa, cocoa palms and sisal. "Permanent cultures" require a longer time for experiments of manuring than those with yearly crops.

Experiments have been principally carried out with *Manihot Glaziovii* trees; measurements of girth and results of tapping having been recorded for plantations at Kange, Neusagan, Mwule, Massowien, Longusa and Tanga.

Following up previous trials, an experiment was lately carried out at the Kwagundo plantation of Captain Adler in German East Africa, where the soil is dark and rather heavy. The forest was cleared in 1912 and rubber trees were planted at distances of 13 x 16 feet. Manuring commenced on May 15, 1913. The trees are now said to be thriving.

CEYLON'S COMMERCE FOR PAST TWO YEARS.

According to the report of Consul Charles K. Moser of Colombo, the imports of the island grew from $32,728,512 in 1903 to $56,874,774 in 1912 and the exports in the same period from $32,722,733 to $61,938,553.

Comparing the exports of rubber for 1912 and 1913 the following results are shown:

	1912.	1913.
United Kingdom .....*pounds*	8,176,523	15,841,126
United States	4,833,085	6,417,236
Belgium	1,315,298	4,214,736
Other countries	676,169	1,560,247
Total	15,001,075	28,033,345

While the larger quantities went to the three more important markets the group of "other countries" showed an advance on the average of about 120 per cent. The general advance represented about 90 per cent.

SAPUMALKANDE RUBBER CO., LTD. (CEYLON).

The total production of rubber in 1913 was 324,160 pounds against 241,324 pounds secured in 1912. Inclusive cost of production in 1913 was 1s. 4.02d. (32.44 cents) per pound; the net price realized being 2s. 5.28 d. (59.31 cents) per pound. Some 133 acres hitherto under tea and rubber are new under rubber alone. For 1914 the crop estimate is 400,000 pounds.

RUBBER FREIGHTS FROM THE EAST.

In commenting on the recent course of the crude rubber market, the "Ceylon Observer" urges the need of correcting the great disparity at present existing between rubber and tea freights. The latter article from Calcutta pays 30 shillings or $7.30 per 50 cubic feet, while rubber has to bear a rate of about 60 shillings or $14.59.

FEDERATED MALAY STATES RUBBER EXPORTS.

According to a cablegram from the government to the Malay States Information Agency, the exports of plantation rubber from the Federated Malay States for the month of May amounted to 2,069 tons, as compared with 1,225 tons in the corresponding month last year, and 2,151 tons in April last.

Appended are the comparative statistics for 1912 and 1913:

	1912.	1913.	1914.
January .....*tons*	1,218	2,131	2,542
February	1,212	1,757	2,364
March	1,379	1,737	2,418
April	1,020	1,626	2,151
May	1,007	1,225	2,069
Total	5,836	8,476	11,544

AMERICAN COMPANIES IN MALAYA.

According to the reports issued by the Waterhouse Co., Ltd., of Honolulu, of the Tanjong Olok plantation and the Pahang Rubber Co., both these concerns are in a satisfactory condition with good prospects. The secretary and treasurer of the two companies, Messrs. A. and F. T. P. Waterhouse, both visited Malaya during 1913 and the above reports have thus a personal character.

With regard to the first of these companies, the manager's estimate for 1914, based on the first four months, is 210,000 pounds. The output of 124,100 pounds for 1913 having been considered unsatisfactory, a change in organization was made.

ANGLO-MALAY RUBBER CO., LTD. (FEDERATED MALAY STATES).

Returns for 1913 show an output of 1,346,008 pounds against 943,491 for 1912; obtained from an average area of 3,019 acres. The inclusive cost of production was 1s. 3.16d. (32.79 cents) per pound, and the average gross price realized 2s. 9.42d. (67.36 cents) per pound. Two new washing mills were installed during 1913 in the Batang Kali factory.

HARPENDEN (SELANGOR) RUBBER CO.

Production in 1913 was 392,136 pounds, against 307,414 in 1912. The inclusive cost price was 1s. 3.37d. (30.16 cents) per pound and the selling price 3s. .06d. (73.10 cents) per pound.

It is reported that a machine is now being constructed for a rubber company in West Africa for the purpose of flying over the forests of that region and locating rubber trees.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

RUBBER NOTES FROM SINGAPORE.

By Our Special Correspondent.

SINCE the publication of my last letter, in the January issue of THE INDIA RUBBER WORLD, figures have become available which change the feeling of speculation in regard to the future position of wild rubber to one of almost absolute certainty. The year 1913 saw the end of the domination of wild rubber—some 60,000 tons against 47,700 tons of plantation—and marked its entrance upon a subordinate position in annual crop statistics. This year, 1914, will see wild rubber falling off in quantity, while the plantation output is likely to be not less than 60,000 tons, and may even reach 70,000 tons in the event of high prices, which might tempt the opening up of areas not really matured sufficiently for otherwise profitable results. For the last ten years the supplies of assorted wild rubbers have been between 60,000 and 70,000 tons per year. This year the probabilities point to only 45,000 tons, and for 1915, with plantation rubber at an average price of 2s., thereby taking the place of the cheap rubber of the past, there is every prospect of the supply of wild rubber not exceeding 30,000 tons. With no known economy can any but the very best Fine Hard Pará from the most easily accessible regions be produced at a competitive price, and the inferior rubbers will have been mostly weeded out altogether. In fact I venture to think that 30,000 tons of wild rubber for 1915, with 2s. plantation, is altogether too optimistic.

There is a small temporary shortage in rubber in sight for the present year, as the consumption is almost bound to be more than the estimated production of 110,000 tons, for at the present low prices, manufacturers seeing ahead the certainty of continued cheap rubber will be able to formulate plans for enlarged consumption through new and extended uses of raw rubber. There is not the slightest fear of a temporary rise in price creating increased supplies of wild rubber, the fact of cheap prices having come to stay being too well known for encouragement to be given to the organization of wild rubber enterprises. There will always be a certain amount of wild rubber collected by natives of the producing countries at trifling cost and sold for what it will bring, but a few thousand pounds a year will cover this, as long as it will pay the freight. Much wild rubber was bought in Africa at 1s. a pound in the old days, and this will probably be done again on a small scale, unless manufacturers throw out such rubber in favor of the standard, constant purity of plantation rubber.

The 47,700 tons of plantation rubber produced in 1913 were obtained from about 450,000 acres only of the 1,500,000-odd acres planted in the Middle East. This is nearly all rubber planted up to 1908, with a small quantity of 1909 rubber brought in under the high price in early 1913. There are, roughly, 150,000 acres more planted in 1909 which will be in bearing this year and which will produce probably 4,000 or 5,000 pounds during the latter half of the year. There were some 300,000 acres planted in 1910, which will be in bearing by the end of 1915; 400,000 acres in 1911, bearing in 1916, and 200,000 acres in 1912, bearing by the end of 1917. These are merely rough figures, but they suffice to show to what extent the years will bring their increase. The maximum production will not exceed 400 pounds per acre, and it is probable that the average in full bearing will be nearer 300 pounds per year.

There is not the slightest doubt that Fine Hard Pará will always command a market, but it is equally certain that within the present year Malaya will be turning out large quantities of smoke cured rubber made like Fine Hard but of greater purity. This rubber will be absolutely standardized and can be produced by thousands of tons as soon as consumers show any desire for it. Machines are now being made which will turn out 1,000 pounds of smoke cured rubber per day, worked by three coolies, the rubber being produced direct from the latex by smoke coagulation without the use of acid or other adulterations. By this and other methods and the establishment here of a buying agency, manufacturers could have rubber made to suit their requirements for shipment direct to themselves within a few days' time. Such a buying agency, with a capital of $5,000,000, would be able to handle 30,000 tons a year—basing this calculation on an average price of 2s. for rubber and on New York payments, which are usually on ninety days, so that the financial resources of the company must be sufficient to take care of a three months' supply. Of this capital probably only about $2,000,000 would be required at the start, as the banks carry up to 70 per cent. on bill of lading, with approved credit, at 6 per cent. Such an investment, beside affecting a material saving to the consumer, would probably earn attractive dividends. The purchases would be made on contract here at fixed rates and the quality would be uniform and guaranteed, all the rubber being re-packed except such as came from estates which had earned confidence. Cheap freights and direct shipments would also tend to reduce first cost to the consumer without robbing the producer.

Consumers having awakened to the possibilities afforded by direct shipments of rubber made to their order—which would mean a considerable reduction in the London office profits of the plantation companies—the resulting situation will probably be most beneficial to the stockholders of such companies, as drastic reforms in estate management, with material increase in efficiency as well as decrease in cost of production, must take place. Some of the company reports now coming to hand show a degree of caution in striking contrast to reports issued in the past.

The rubber industry in the colony is controlled almost entirely by non-resident directors, many of whom have never even seen a rubber tree and would hardly know rubber if they saw it. It stands to reason, therefore, that their knowledge of the management of estates—some of which are larger than the city of New York, containing four or five, and even up to ten square miles of planted rubber—is very limited, most of the agencies with whom the executive administration is vested having power of attorney to act for them. The local agents are usually merchants, accountants, financial agents, etc., not planters, so that they find it necessary to employ a visiting agent as a go-between. This man is usually an old planter, not infrequently a man of only moderate attainments who has passed his usefulness as an active planter and who has a lot of fine old crusted beliefs, living entirely in the past and combating every innovation.

These men are usually extremely intolerant of any scientific knowledge and of new discoveries and methods; and the unfortunate part of it is that they are generally able to impress these views upon the agents, who knew them as successful planters in the old days. One of the unfailing weaknesses of the visiting agents has been to write glowing and optimistic reports on the companies over which they have control; but now that the development of unproductive areas can no longer be given as an excuse for failure to pay interim dividends—there being no undeveloped areas left, to speak of—not only will the office of visiting agent probably be dispensed with, but the estate manager will be obliged to bring himself up to date in methods, etc. He must in the future be a technical expert—a specialist in the manufacture of raw rubber as well as a planter; versed in upkeep of land, roads, drains, plant diseases, etc. The great need of the colony is for technical experts in the making and producing of rubber itself. There are not many people here yet who have any knowledge of this subject on modern lines, but the few so equipped are making a reputation for themselves and are commencing to influence the prosperity of individual estates.

The opinions expressed in the past by promoters of rubber producing companies in Sumatra, that they would not only be able to bring their rubber into bearing at very much cheaper rates than in Malaya, but at a cost of some 3d. under the cost here, have not been borne out by the actual results. Quite a number of our rubber estates here—none of which have any secondary crops to share the expense of land up-keep and administration—have produced their rubber at an f. o. b. cost of 1s., and several at 9d. to 10d., during the last year; which, considering that the average area in bearing is still not more than one-half, and

the bulk of the tapped area still in its first or second year of bearing, should be considered very creditable. Costs in Sumatra are always quoted in guilders (40 cents gold) against costs in Malaya in Straits dollars (56 cents gold). Enormous new tracts of land have been opened up in Sumatra—at least 700,000 acres in the last ten years. Practically all of this extension has taken place where there are neither roads nor railroads, and these are now having to be built, entailing increasing expenses to the Government of the Dutch Indies and the necessity for enforcement of a drastic income tax, which it is said is to be still further heavily increased. This tax is only now being felt by the companies, whose estates have not heretofore been productive or earning any income. Moreover, the land in Sumatra is not owned by the plantation companies, being leased from the Government by registered Dutch companies only, and for a term of seventy-five years, at a rental averaging about 1 guilder (40 cents gold) per acre per year, beginning at about one-half of this amount and taking five years to reach the maximum. This is a condition which is hardly likely to tempt large investments of capital.

I hear that renewed interest is being taken by American cocoanut oil consumers in cocoanut planting. May I be permitted to endorse the word of warning issued by the British Government against fraudulent and unduly speculative concerns out here. Cocoanuts can no longer be planted cheaply, as in the past, as shown in an article which appeared about the middle of March last in the London "Financier," which gave the real cost of cocoanut planting. There are very few cocoanut estates owned by Europeans in the Middle East, and none of any importance are for sale. The bulk of the cocoanuts planted in the Middle East are owned by native squatters in small patches, who have no transferable titles; and any attempt to sell a cocoanut estate should have the fullest investigation.

STRAITS SETTLEMENTS RUBBER EXPORTS.

A cable received by the Malay States Information Agency from the Colonial Secretary, Singapore, states that the export of plantation rubber during the month of May amounted to 1,309 tons, as compared with 1,548 tons in April last and 814 tons in the corresponding month last year.

The total export to the end of May is 7,026 tons against 4,001 tons for the first five months of last year.

The following table gives the comparison, month by month, for three years:

	1912.	1913.	1914.
January .....*tons*	253	784	1,181
February	274	743	1,703
March	427	898	1,285
April	387	762	1,548
May	431	814	1,309
Total	1,772	4,001	7,026

These figures include transshipments of rubber from various places in the neighborhood of the Straits Settlements, such as Borneo, Java, Sumatra and the non-Federated Malay States, as well as rubber actually exported from the Colony, but do not include rubber exports from the Federated Malay States.

IMPORTS OF MOTOR VEHICLES TO STRAITS SETTLEMENTS.

According to a German Consular Report, the imports of bicycles, motor vehicles and parts represented in 1912, $1,947,000, against $1,438,000 in the previous year.

RUBBER FROM THE EUPHORBIA TIRUCALLI.

This tree grows in most of the valleys of Natal, within forty or fifty miles of the coast; its latex being said to contain from 12 to 15 per cent. of rubber and an average of 74 per cent. of resin. When extracted the rubber is reported to be worth 80 per cent. of the price of Pará rubber.

CAPITAL INVESTMENTS IN RUBBER IN NETHERLANDS EAST INDIES.

The subjoined table reproduces in American currency the figures quoted in the "Exhibition Guide Book," showing the distribution of investments.

	Java.	Sumatra.	Riouw.	Borneo.	Total.
Dutch	$4,496,080	$9,230,680	.....	$600,000	$14,326,760
British	28,200,200	23,078,800	$1,642,520	4,288,720	57,210,240
Belgian and French	7,216,800	3,112,000	200,000	.....	10,528,800
German	460,000	38,400	.....	.....	498,400
Swedish	.....	74,200	.....	.....	74,200
American	.....	6,000,000	400,000	.....	6,400,000
Total	$40,373,080	$41,534,080	$2,242,520	$4,888,720	$89,038,400

AREA OF CULTIVATED RUBBER IN THE DUTCH EAST INDIES.

The subjoined table shows a total of 462,510 acres under rubber cultivation in Dutch East India, of which 442,192 are in private hands and 20,318 belong to the government. This area is distributed as follows:

	Java.	Other islands.	Total.
Private ownership .....*acres*	217,696	224,496	442,192
Government ownership	19,502	816	20,318
Total	237,198	225,312	462,510

PLANTATION COMPANIES IN 1914.

Returns from 17 companies in the Straits, Java and Sumatra show the following aggregates for January, 1914, as compared with January, 1913: Straits, 9 companies, 702,343 pounds against 560,257 pounds; Java, 4 companies, 241,097 pounds against 157,670; Sumatra, 4 companies, 1,320,459 pounds against 667,733 pounds.

Taken in separate groups the rate of increase is: Straits, 25 per cent.; Java, 53 per cent.; Sumatra, 97 per cent.

NETHERLANDS RUBBER FREIGHTS.

Complaints have been made by the Amsterdam Rubber Trade Association because of the heavy freight charges of the steamship companies running from Netherlands India to Europe and from the Netherlands to the United States. The high cost of transportation to America via Holland is encouraging the movement for a direct service.

The reduction of 11*s.* ($2.68) per ton on rubber from the Straits Settlements to London (effected through the action of the Rubber Growers' Association) is quoted in support of the movement for a reduction in the freight from Netherlands-India.

According to the report of the Soekaboemi Agricultural Association, the rubber production of Java for 1913 is estimated at 3,000 tons, against 1,500 tons for 1912.

The list of prizes to be awarded at the Batavia Rubber Exhibition to be held next September is constantly growing. In addition to the large solid silver cup offered by Mr. Pearson, the editor of THE INDIA RUBBER WORLD, for the best system of extracting gutta-percha, a cup will be offered by the Executive Committee of the Congress for the best collective rubber exhibit. Prizes will also be offered by the Rubber Growers' Association of Malaya, "Grenier's Rubber News," and by a number of individuals, for excellence in various departments of rubber growing and manufacture.

Exports of rubber from British North Borneo in 1912 amounted in value to $545,703, a gain of $298,293 over those of the previous year; while exports of gutta percha dropped from a value of $6,580 in 1911 to $4,246 in 1912.

There are now in Cochin China 29,600 acres planted in rubber, with about 4,000,000 trees, and it is estimated that by 1920 the annual production will have reached 4,000 tons.

PRESENT AND FUTURE AMAZONIA.

By an Occasional Correspondent.

IN a recent lecture delivered in Para, Dr. Severino Silva commented on the fact that in the Amazon country during the years of its prosperity attention was paid almost exclusively to the gathering of rubber, everything else being practically neglected. Through a desire to get the largest quantity of rubber in the shortest time, many trees were tapped without regard to their future usefulness and thus were ruined, although the *Hevea brasiliensis*, which gives an abundance of latex and requires fewer incisions, was somewhat exempt from the ruthless methods pursued with other trees.

The lecturer went on to discuss the high cost of living and of prosecuting any industry in that country owing to the extravagant habits of even the poorer classes, habits contracted during the days of abnormally large earnings. He stated that northern Brazil had but a rudimentary knowledge of agriculture. He thought, however, that this condition could be altered by securing the proper sort of immigration, with a view to the ultimate fusion and absorption of such colonists.

THE PRESIDENT'S MESSAGE.

According to the latest annual message of the President of Brazil, the railroad system of this country was increased by 1,600 miles during the past year, bringing the total mileage of the Republic up to 16,000. There was a falling off during the year of $55,000,000 in the value of coffee and rubber exports, due not so much to decreased quantities as to lower prices. The President stated that a revision of the customs tariff was in preparation. One interesting feature of his message was his expression of thanks to the United States for the reception accorded last summer to Dr. Lauro Müller, Minister of Foreign Affairs, when he paid you a visit of several weeks.

THE BRAZILIAN PRESIDENT-ELECT.

In November next, Dr. Wenceslao Braz will succeed Marshal Hermes da Fonseca, whose four years' term as President of Brazil will then expire. In his early days Dr. Braz took the degree of Doctor of Laws; being elected a member of the legislature of Minas Geraes, in which state he held the office of Home Secretary from 1899 to 1902. From 1906 to 1909 he was Governor of the state, and was subsequently elected vice-president of the Republic for the quadrennial period from November 15, 1910, to November 15, 1914, when he will assume the office of President. It is expected that Dr. Braz, now 45, will show himself capable of dealing with the special financial difficulties now confronting the government of Brazil. He has proved an energetic and independent administrator, commanding the confidence of the nation.

COLONEL ROOSEVELT AT PARA.

Colonel Roosevelt landed at Para on the morning of May 7, being received by Dr. Enéas Martins, Governor of the state; Senhor Dionysio Bentes, intendant of Belem; United States Consul Pickerell, and other officials. The party drove through the most attractive parts of the city to the residence of Governor Martins, where a band was stationed which played American and Brazilian national anthems, and where the Colonel's formal reception took place. In conversation he alluded to the many waterfalls in the country as sources of energy and exercising an influence upon the future of Brazilian industry, adding: "It is for capitals like Manaos and Para to develop this influence. . . But Amazonia ought to cultivate other products besides rubber."

With regards to Rio, he said it had three elements of a large city: cleanliness, good lighting and good municipal regulations. These, he said, are unequalled in the world. As to Para he was surprised to see in the equatorial zone such a clean and attractive city.

Colonel Roosevelt and those who had taken part in his reception, were the guests at lunch of Governor Martins, being joined by the presidents of the Senate and Chamber of Deputies as well as other officials. The Colonel re-embarked early in the afternoon.

DR. PINTO ESTABLISHES PARA OFFICE.

Dr. Carlos de Cerqueira Pinto announces that he has contracted with the government of Brazil for the introduction of his patent process for the preparation of *Hevea* and Caucho rubber without smoking, the only process which reduces the cost of production. In accordance with this contract, he has established his laboratory, warehouse and office at No. 48, rua 13 de Mayo. All the materials necessary for those who wish to make rubber according to his process will be found at his above address.

MADAME HUBER GOES TO EUROPE.

Madame Sophia Müller Huber, widow of the late Dr. Jacques Huber, accompanied by her children, left Para for Europe early in May. Dr. Enéas Martins, governor of the state of Para, went to the steamer to take leave of her. She intends to reside at Schaffhausen, Switzerland.

ILLNESS OF TWO BRAZILIAN FEDERAL MINISTERS.

Recent advices from Rio mentioned that Dr. Lauro Müller, Minister of Foreign Affairs, and Dr. Edwiges de Queiroz, Minister of Agriculture, were both still indisposed.

SHIPPING "MENDES FINE."

Last August, J. Marques, the rubber exporter of Pará, shipped to New York some trial cases of rubber in sheets prepared by the Mendes process (which was described on page 346 of the April issue of THE INDIA RUBBER WORLD), some of this rubber being Acre rubber and some of it Islands. These samples were sold at a premium of 10 cents per pound, and the shrinkage was reported as 4 per cent. for the Islands against the usual 14 to 16 per cent., and 2½ per cent. for the Acre rubber as against the usual 4 per cent.

PORTRAITS OF LATE DR. HUBER.

Before her recent departure for Switzerland, Madame Sophia Huber presented to Dr. Ignacio Moura, of Pará, a portrait of her late husband, with an appropriate inscription. The Permanent Commission of the Economical Defense of Amazonia intends to place a reproduction of this portrait in its headquarters.

Señhor Adolpho Ducke, head of the botanical division of the Museu Goeldi, has been provisionally entrusted with the direction of that establishment.

NEW BRAZILIAN PROCESS OF LATEX COAGULATION.

Señhor Conrado Ramos Bastos lately exhibited at the Pará Commercial Association various qualities of rubber prepared by a process of his invention. This method consists in the coagulation of the latex and the preparation of the sheets without the use of chemicals of any kind.

The "Folha do Norte," of Pará, reports a demonstration held at its offices, which showed that rubber prepared by the system referred to was free from impurities and possessed the needful elasticity, having apparently passed through a refining process. The local authorities and the chief members of the rubber trade attended the exhibition of the results obtained by the new process.

PRESIDENT-ELECT ON BRAZILIAN PRODUCTS.

In the course of an interview, Dr. Wenceslao Braz, the president-elect of Brazil, lately reviewed the condition of the chief national products. He attached special importance to the development of cotton and articles of food. Cacao, he also suggested, was admirably adapted for the north of Brazil; that part of the country being particularly affected by the recent fall in rubber, while the world's consumption of cacao is constantly increasing. He further urged the importance of immigration, which he considered was most valuable when spontaneous or under the auspices of settlers already located in the country. The wonderful progress of the United States in attracting immigrants he attributed to the American educational system.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE RAILWAY—POSITION OF THE BALATA INDUSTRY.

THE Secretary of State for the colonies has replied to the governor's despatch asking for an Imperial loan for the construction of a railway to the hinterland of this colony, together with a grant in aid of any deficit that may occur during the first five years the railway is running. The Secretary of State agrees that the resources of British Guiana are rich, but points out that any scheme of development that is proposed should show a satisfactory prospect of recouping the expenditure incurred upon it within a reasonable period. The scheme submitted by the governor does not, in his opinion, conform with economic principles. The scheme submitted must be self-supporting at an early stage, and must not be such as to make any appeal to the Imperial Government for a grant in aid of revenue. The Secretary of State, therefore, asks the governor to frame a scheme which it will be possible for the colony to finance out of its receipts and out of the general increase of prosperity created by the scheme. In the event, however, of the Imperial Government granting a loan for the construction of the railway, the Secretary of State makes it quite clear that the constitution will have to be so modified as to give the Imperial Government full control over the colony's revenue and expenditure.

It has been decided in the colony to proceed with the idea of the railway and to endeavor to secure a loan from the Imperial Government on the most favorable terms possible. It has been suggested that as the conditions will be harder for the colony to meet than would have been the case under the Governor's scheme, and as the gold and balata industries stand to benefit most by the enterprise, they should submit to slightly increased taxation. Representatives of the balata interests in the colony do not look upon the suggestion with favor. In view, however, of the great saving balata companies will effect upon their expeditions by means of the railway, the suggestion is worth their consideration. The following letter by the Attorney General, illustrates the enormous disadvantages under which the balata industry now suffers on account of the lack of adequate means of communication: "When I spoke at the Railway Committee yesterday of the cost of the present journey of balata bleeders to and from the Rupununi as amounting to £30 to £40 per head I meant the total economic cost to the industry, not the actual out-of-pocket expenses of the employer. The employer loses much in money outlay for boats and boat-hands and in the efficiency of his men. The laborer loses months of time in actual journeys and in delays and is out of pocket for months of expensive food, every mouthful of which has to be carried from Georgetown. There is also to be considered the loss of balata and the occasional abandonment of expeditions costing thousands of dollars."

THE RUBBER INDUSTRY—LATEST STATISTICS.

At a meeting of the Board of Agriculture, held recently, the governor, Sir Walter Egerton, who presided, said that since Mr. Bancroft, the Assistant Director of Science and Agriculture, had been in the colony he had demonstrated that Pará rubber would grow as well here as in the Malay Peninsula and Eastern countries. Pará rubber was not a gold mine but was still a very profitable speculation. It was stated at this meeting that in future the colony would depend very little upon outside supplies of seeds. There were now in the Botanic Gardens 200,000 seedling plants and in order to encourage purchasers the price has been reduced from five cents each to two cents each. Since the last census of production was taken in the colony the area under rubber has increased by 859 acres and it is now 4,018 acres. There has been a steady increase during the past seven years.

THE RUBBER EXHIBITION—THE COLONY'S EXHIBIT.

The colony is not going to make the same mistake this year that it made in 1912, when, by a curious series of blunders, it abstained from securing representation at the New York Rubber Exhibition. For the Rubber and Allied Trades Exhibition that is being held in London this year excellent exhibits of rubber, balata, sugar, rice, cacao, coffee, cocoanuts, casava starch, arrowroot, timber, etc., have been despatched. The rubber and balata exhibits include the following:

Rubber: Issorora station, biscuits 120 pounds, scrap 10 pounds; Onderneeming Farm, biscuits 38¾ pounds; Plantation Tushen, biscuits 6 pounds; Plantation Leonora, biscuits 7½ pounds; Plantation Providence, biscuits 7 pounds; the Hills Plantation, biscuits 15 pounds; Plantation Noitgedacht, biscuits 15 pounds, sheet 26 pounds.

Balata: Consolidated Rubber and Balata Estates, 400 pounds; Consolidated Rubber and Balata Estates, 30 pounds; Department of Lands and Mines, 112 pounds; Board of Agriculture, 25 pounds.

Sapium rubber: Consolidated Rubber and Balata Estates, 120 pounds.

This decision to exhibit in London is regarded as a wise one, for it is still felt that the abstention from the New York Exhibition was a great mistake.

NOTES FROM DUTCH GUIANA.

By Our Regular Correspondent.

AT the time of writing, Dutch Guiana is passing through an unusually wet period. The rains are falling almost continuously, with but very short intervals of sunshine. The balata bleeders are taking advantage of the favorable weather, and are all reaping a big harvest of latex. One bleeder alone reports having stored 200 barrels of milk awaiting fair weather to dry his production. Unlike rubber, balata cannot be satisfactorily dried without some sunshine, and too much rain is as bad as no rain for the balata business.

This year will undoubtedly break all records of production, for 145,225 kilos. (319,495 lbs.) had been exported to the United States and Europe by the end of April. The production for the month of April alone stands at 50,341 kilos. (110,750 lbs.).

The new regulations to which reference has been made in previous correspondence are still the topic of the day and continue to cause a good deal of friction in the balata gathering industry. It is said that the Colonial States will not pass the bill, but the Home Government will certainly take a different view of the situation and adopt the new ordinance in spite of whatever the local parliament may say or do, for the new regulations are well suited to Dutch Guiana, where capital is so badly needed.

The man of modest means will be obliged to work for the capitalist on his terms or get out of the business altogether. Formerly, the little man could take a small concession from the government or work a piece of private land on which balata trees grew, and pay a small royalty to the owners; but under the new regulations, unless he can put up a large amount of money and take in concession an extensive tract of land, he must drop out of the business. This is the principal bone of contention among the moderate capitalists in the colony.

The new regulations will greatly tend to lessen fraud among the bleeders and others who formerly did not hesitate to help themselves to their employers' property, especially when they found themselves heavily indebted. Not only was the government swindled out of revenues, but the concerns operating on a large scale were badly "done." All this will be stopped under the new regulations.

Our neighbors in Cayenne, or French Guiana, have at last awakened to the fact that their colony possesses a very valuable asset in the form of large tracts of balata forests. In days of

old the people of that colony would touch nothing in the "bush" line except gold, and in consequence had no desire to tamper with balata; with the exception of a few isolated instances, where the work was carried on by negroes from British Guiana. The French have made large profits in gold digging, and it was hard to persuade them to go in for anything else. Many of these French creoles became very rich from placer washings by hand process; the precious metal being freely distributed throughout that portion of South America and the mining laws so favorable that the inducements were too tempting not to be taken advantage of. In consequence every man and almost every woman was a gold digger.

The Mini creek, a tributary of the Maroni river, on the French shore produced alone in five years about $25,000,000 in dust and nuggets, and this was nothing in comparison with the wealth taken out of the Carsewenne district—now annexed to Brazil—in the early nineties. These placer diggings were discovered under peculiar circumstances. The story is an exceedingly interesting one but can be given here only briefly: An old halfbreed Indian confided to a friend of his, a young French fisherman, that he had made a great gold discovery at a point on the Carsewenne river, a twelve days' trip from Cayenne. The fisherman doubted the tale but passed it on to a negro prospector, who got the old halfbreed to accompany him and took a trip to the spot indicated. He brought back to Cayenne a bag of sand which being assayed proved to have 500 ounces of pure gold. The authorities, being sure he had stolen it from some mine, put him in jail, but no mine owner appearing to claim the gold he was finally released. A second trip netted him 5,000 ounces of gold, and on the third trip, so goes the story, he and a companion made $200,000 each.

Is it any wonder, then, that the French people have never turned their attention to any other industry?

But most of the placers are worked out at the present time, and the French are turning to some other enterprise. The balata business opens to them unusual opportunities for making money quickly on their investments. The balata forests are accessible, the laws governing the industry are simple and millions of acres can be had for the asking.

The Government exacts a small tax per kilogram on the produce when brought in for export, but there are no restrictions as to methods of tapping. Under the circumstances it is natural to suppose that French Guiana will become a very lucrative field for the bleeders and others of modest means; and already there is an exodus to that colony, where men experienced in that line are in great demand.

One hears very little talk of the rubber industry at the present time. The very low market price of the article would appear to have chilled in a great measure the enthusiasm displayed by the growers, who some time ago had great hopes that the industry would be a lasting and highly remunerative one. The present prevailing low market prices have caused the planters to suspend operations on the trees and thus give them a chance to develop, with the hope that at some future time the prices of rubber will increase.

It is gratifying to record that the Javanese women and some of the men on the plantations have rapidly acquired proficiency in the accepted methods of tapping; and, when the markets are tempting, Dutch Guiana rubber will be produced in large quantities. The action of the rubber growers in playing a waiting game is highly commendable. It must not be forgotten, however, that the planters have not to depend on the rubber produced to meet current expenses. Cocoa, coffee and other products are grown to great advantage and profit, and in consequence the planters who have areas clutivated with rubber are quite independent of the state of the rubber market.

The accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

BALATA IN DUTCH AND BRITISH GUIANA.

A French account states that after 20 years' existence the balata industry of Surinam seems to be losing ground. The trees are spread over a large area; the lack of the needed attention being the cause of their diminution. Regulations have been introduced with a view to the prevention of their destruction. Returns of exports show 892 tons for 1910; 1,145 tons for 1911 and 727 tons for 1912. This reduction is attributed to the fall in the price of rubber, in conjunction with the destruction of the balata trees.

COMMERCE AND INDUSTRIES OF TRINIDAD AND TOBAGO.

According to a report from Consul Andrew J. McConnico of Trinidad, the imports for consumption in 1912 were $12,306,809, against $13,400,154 for 1911. The exports include balata gum $22,182 for 1911 and $28,732 for 1912. Total exports were $23,210,704 for 1911 and $21,765,795 for 1912.

Later information gives the total shipments of rubber from January 1 to May 31, 1914, as 3,785 pounds, against exports for the corresponding periods of 1913 and 1912 of 1,505 and 1,725 pounds respectively.

Trinidad being one of the chief shipping ports of the West Indies, a bright future is confidently predicted for it with the opening of the Panama canal.

The cultivation of rubber was continued during 1913 and the yield showed an increase, but was not up to expectations, owing to the adverse weather conditions.

CUBAN PURCHASES OF RUBBER GOODS.

Cuban imports of rubber goods for 1912 included waterproof cloths, $277,500, of which amount $150,000 were received from the United States; $82,500 from the United Kingdom; $12,250 from Italy, and $10,000 from Spain. Rubber hose and other manufactures of rubber came from the United States to the amount of $110,000.

REDUCTION IN MEXICAN RUBBER SHIPMENTS.

Statistics of Mexican exports from July to December, 1913, as compared with the corresponding period of 1912, show: Guayule $354,132, against $2,174,741; rubber $369,353, against $2,495,731, and chewing gum $693,019, against $879,666.

RUBBER ESTATES OF JOHORE, LTD.

The eighth annual report of the above company, covering the year 1913, records a crop of 323,501 pounds, against 106,261 pounds for 1912. Inclusive cost of production was 1s. 9½d. (43.58 cents) per pound and gross price realized 2s. 8¼d. (65.37 cents) per pound. Three new washing mills were erected during the year and additional ones will be installed in 1914.

PATALING RUBBER ESTATES SYNDICATE (FEDERATED MALAY STATES).

The annual report shows the inclusive cost price as 1s. 0.79d. (25.87 cents) per pound. Forward sales for 1913 were 72 tons at an average gross price of 4s. 3.57d. (104.06 cents) per pound. A dividend (including the interim payment) of 150 per cent. was declared for 1913. The yield in 1913 was 485.627 pounds, against 429,547 pounds in 1912.

The Colombian Congress (law 52 of 1913) appropriated $20,000 to explore the Caqueta and Putumayo countries of the southern border of Colombia and for a general report on the possibility of their colonization, the plan being to grant unconditionally 125 acres to each family or man over 21 years of age immigrating there.

Should be on every rubber man's desk—The Rubber Trade Directory of the World, 1912.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED MAY 5, 1914.

No. 1,095,219. Anti-skid device for motor vehicle wheels. M. Malek, New York, N. Y.

1,095,220. Hose coupling. A. McIntosh, Randolph, Vt.

1,095,257. Spring wheel. A. M. Wolf, Plymouth, Wis.

1,095,264. Teething device. J. S. Bridges, assignor to Koolbite Toy Co.—both of Chicago, Ill.

1,095,283. Repair tool for pneumatic tires. E. E. Miller, Milwaukee, Wis.

1,095,287. Emergency tire for automobiles or similar use. S. C. Rand, Battle Creek, Mich.

1,095,349. Demountable tire rim. F. M. Osborne, Anaconda, Mont.

1,095,385. Demountable rim for resilient tires. C. W. Cramer, Scranton, Pa.

1,095,386. Emergency tire. C. C. Dabelstein, Detroit, Mich.

1,095,395. Production of isoprene. A. Heinemann, South Kensington, London, England.

1,095,416. Resilient wheel. E. A. Pierce, Sacramento, Cal.

1,095,451. Non-slip attachment for vehicle wheels. T. J. Clark, Milwaukee, Ore., assignor to T. J. Clark Co., Portland, Ore.

1,095,553. Raisin seeding machine, comprising a soft rubber roller. N. B. Converse, Fresno, Cal.

1,095,584. Process of making combs. W. J. McIntosh, Arlington, N. J., assignor of one-half to H. Schloss, New York, N. Y.

1,095,661. Machine for cutting sheets into strips. J. N. Moulton, Haverhill, Mass.

1,095,681. Bust supporter. G. B. Smith, Philadelphia, Pa.

1,095,699. Folding machine. O. W. and I. E. Booth and L. W. G. Flynt, Rochester, N. Y., assignors to Boston Machine Works Co., a corporation of Massachusetts.

1,095,721. Dress shield. J. C. Flade, assignor of one-half to C. E. Flade—both of San Francisco, Cal.

1,095,752. Hat fastener with rubber inner facing. G. A. Ulrich, Mexico, Mexico.

1,095,770. A detachable tire carrying rim for vehicle wheels. J. A. Anglada, New York, N. Y., assignor to Universal Rim Co., Chicago, Ill.

1,095,771. Vehicle wheel rim. J. A. Anglada, New York, N. Y., assignor to Universal Rim Co., Chicago, Ill.

1,095,775. Demountable wheel rim. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.

1,095,776. Automobile wheel with a demountable rim. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.

1,095,777. Pneumatic tire mounting. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.

1,095,778. Demountable tire rim. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.

1,095,779. Automobile wheel. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.

1,095,821. Spring wheel. G. E. Crawford, Britton, Okla.

1,095,834. Flexible dress overshoe. C. L. K. Ferguson, Philadelphia, Pa.

1,095,846. Tire. C. Gaul, Brooklyn Hills, N. Y.

1,095,854. Clinical thermometer case. O. Gray, Little Rock, Ark.

1,095,861. Cushioned tire for vehicles. A. H. Henderson, assignor to the Henderson Rubber Co.—both of Baltimore, Md.

1,095,947. Garment-holding belt of uncovered elastic rubber. S. H. Thorp, Charters Tower, Queensland, Australia.

1,095,950. Device for disinfecting telephones, comprising a rubber bulb. R. B. Adams, C. H. Wells, and H. G. Payne, Westerville, Ohio.

1,095,953. Wheel for automobiles. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.

1,095,956. Resilient vehicle wheel. E. M. Butler, Los Angeles, Cal.

1,095,969. Nipple for nursing bottle. J. C. Poore, Chicago, Ill.

1,095,988. Manufacture of coating and impregnating materials. C. Roth, Frankfort-on-Main, Germany.

1,095,996. Demountable rim. C. G. Hawley and E. K. Baker, assignors to Universal Rim Co.—all of Chicago, Ill.

1,096,008. Shoe heel. F. A. Nolan, St. Paul, Minn.

Designs.

45,723. Rubber or elastic vehicle tire. A. D. Nichols, San Francisco, Cal., and W. W. McMahon, Detroit, Mich., assignors to United States Tire Co., New York, N. Y.

45,734. Playing ball. G. C. Worthington, assignor to the Worthington Ball Co., Elyria, Ohio.

Trade Marks.

65,537. L. E. Berebaum, Chicago, Ill. The words *A-Just-It* in a fancy design. For hose supporters and suspenders.

75,549. The Fisk Rubber Co., Chicopee Falls, Mass. Picture of a child ready for bed, holding a tire in one hand and a candle in the other, and beneath it the words *Time to Retire*. For pneumatic and solid rubber vehicle tires.

76,222. J. S. Rapson, Elkins Park, Pa. The word *Dandy*. For rubber erasers.

77,021. H. S. Griswold, Phoenix, Ariz. The words *Do Good*. For tire healing compound.

ISSUED MAY 12, 1914.

1,096,084. Golf ball marking device. W. T. West, Philadelphia, Pa.

1,096,098. Mixing machine. E. C. Cummings. Waterloo, Iowa.

1,096,101. Anti-slipping device. M. J. Frambach and A. R. Corrington, Hartley, Iowa, assignors of one-sixth to T. V. Garvin, Des Moines, Iowa.

1,096,112. Process for making rubber printing press blankets. G. Kush, New York, N. Y.

1,096,184. Emergency covering for hats. C. Mullaney, New York, N. Y.

1,096,206. Exercising apparatus. J. F. Thomas, Clarinda, Iowa.

1,096,232. Hose reel. F. A. Foster, Battle Creek, Mich.

1,096,286. Composition of matter comprising vulcanized rubber compound, and process for making same. E. B. Cook, Danvers, Mass., assignor to Fibre Products Co., Boston, Mass.

1,096,380. Resilient wheel. C. H. Light, assignor of one-half to C. W. Seipel—both of Des Moines, Iowa.

1,096,394. Resilient wheel. K. D. Saulpaw, Calhoun, Tenn.

1,096,408. Detector and alarm for pneumatic tires. S. W. Waterhouse, San José, Cal.

1,096,467. Wheel tire. H. F. Spellhouse, Philadelphia, Pa., assignor to the Tension Tire Co., Wilmington, Del.

1,096,477. Diaper protector. I. M. Weisert, New York, N. Y.

1,096,487. Method of manufacturing leather pneumatic tire covers. G. W. Bell, Stockport, England.

1,096,502. Machine for applying ferrules or bands to hose. H. Gibbs, assignor to W. D. Allen Manufacturing Co.—both of Chicago, Ill.

1,096,503. Hose clamp. H. Gibbs, assignor to W. D. Allen Manufacturing Co.—both of Chicago, Ill.

1,096,515. Elastic heel for boots and shoes. J. H. Rubin, New Haven, Conn.

1,096,526. Pneumatic tire indicator. F. H. Brunig, Kansas City, Mo.

1,096,535. Tire patch. W. C. Howard, Kansas City, Mo.

1,096,574. Life preserving garment. A. Teleky, New York, N. Y.

1,096,607. Diver's suit. J. F. Deray, assignor to himself; C. Lebrecht and A. P. Freeman, trustees—all of Sunnyvale, Cal.

1,096,659. Tire body construction. P. E. Wirt, Bloomsburg, Pa.

1,096,704. Washing device for automobiles. H. T. Ford, Central Valley, N. Y.

1,096,721. Truck tire. R. E. Jamieson, Montreal, Que., Canada.

1,096,749. Spring wheel. J. E. Pinguely, Melbourne, Ky.

1,096,761. Mask. C. Scheer, Silverton, Col.

Designs.

45,741. Rubber ball. B. De Mattia, Garfield, N. J., assignor to F. A. Cigol Rubber Co., Paterson, N. J.

45,766. Tire. J. Neary, assignor to Kokomo Rubber Co.—both of Kokomo, Ind.

Trade Marks.

70,980. Northern Shoe Co., Duluth, Minn. The words *The Northern Maid*. For boots and shoes.

74,481. W. B. Shelp, Houston, Tex. The word *Repeater*. For products of rubber manufacture, consisting of rubber belting, hose, machinery packing, and tires for automobiles and bicycles.

75,648. G. W. Frazier, New York, N. Y. The word *Mermaid*.

77,217. Rogers Peet Co., New York, N. Y. The word *Gymkhana*. For rain coats and other garments.

ISSUED MAY 19, 1914.

1,096,817. Vehicle wheel. L. Anderson, Lake Creek, Tex.

1,096,818. Changeable tread for automobiles. E. O. Anderson, Glenwood, Fla.

1,096,842. Vehicle tire. G. Kelly, Hinsdale, Ill.

1,096,896. Printers' blanket. F. E. Ellis, Revere, Mass.

1,096,959. Pneumatic spring wheel. A. O. Schoelch, Shelbyville, Ind.

1,096,971. Rubber patch clamp for hose. E. D. VanDoren, Beardstown, Ill.

1,096,980. Self adjusting tire inner tube protector. C. L. Witsaman, assignor to the Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,097,017. Machine for making finger cots and the like. J. Hadfield, assignor to the Hadfield Rubber Co.—both of Akron, Ohio.

1,097,018. Glove. J. Hadfield, assignor to the Hadfield Rubber Co.—both of Akron, Ohio.

1,097,037. Core. G. L. Mather, Akron, Ohio.

1,097,070. Brace and support for pelvic viscera. S. M. Anderson, Brooklyn, N. Y.

1,097,114. Spring wheel. C. L. H. Wrase and J. Liddell, Cuba, Wis.

1,097,201. Apparatus for heating inflating gas in balloons. R. H. Upson, assignor to the Goodyear Tire & Rubber Co.—both of Akron, Ohio.

1,097,237. Resilient vehicle tire. S. S. Krayer, St. Louis, Mo.

1,097,239. Anti-skid means for shoes. F. L. Kryder, Akron, Ohio.

1,097,287. Manufacture of brushes. T. F Barry, assignor to Rubber & Celluloid Harness Trimming Co.—both of Newark, N. J.

1,097,295. Glare shield for vehicles, comprising a suction cup. C. H. Brown, C. L. Swartout and M. J. Fitzgerald—all of Richmond, Cal.

1,097,348. Temperature indicator. E. R. Murray, Alameda, Cal.
1,097,383. Abdominal belt. C. Atonna, New York, N. Y.
1,097,427. Wheel tire and rim. F. J. Hadfield, Ringsfield, Beccles, England.
1,097,444. Separable rim. H. B. Keiper, Lancaster, Pa.
1,097,550. Demountable rim. H. B. Keiper, Lancaster, Pa.
1,097,596. Vehicle tire. C. Specht, Woodhaven, N. Y.

Designs.

45,789. Water bottle, syringe bag or similar article. C. E. Campbell, Ashland, Ohio.
45,807. Tire tread. G. W. Greene, assignor to Ten Broeck Tyre Co.—both of Louisville, Ky.
45,810. Automobile wheel rim. M. F. Kettler, assignor to Downing Pneumatic Wheel Co.—both of Houston, Tex.
45,827. Playing ball. G. C. Worthington, assignor to The Worthington Ball Co.—both of Elyria, Ohio.

Trade Marks.

75,445. Dreadnaught Tire & Rubber Co., Baltimore, Md. The word *Dreadnaught*. For rubber vehicle tires and inner tubes therefor.
75,652. L. P. Larson, Jr. Co., Chicago, Ill. The words *L. P. L. Wintermint Gum*, in a fancy design. For chewing gum.
76,030. F. H. Fleer Corporation, Philadelphia, Pa. The word *Panomint*. For chewing gum.
76,050. F. H. Fleer Corporation, Philadelphia, Pa. The words *Spring Root*. For chewing gum.
76,136. The estate of J. G. Hetzel, Newark, N. J. Picture of a boy playing soldier, using an empty cement can as a hat and another can as a drum. For elastic rubber roof cement.
76,172. Dreadnaught Tire & Rubber Co., Baltimore, Md. The word *Dixie*. For rubber vehicle tires and inner tubes.
76,847. Emery & Marshall Co., Haverhill, Mass. The word *Suffragette* in form of a semi-circle. For shoes made of leather, canvas, cloth and rubber.

ISSUED MAY 26, 1914.

1,097,608. Extra tire lock. J. U. Barr, New York, N. Y.
1,097,630. Fountain brush. I. N. Hollingsworth, Lauderdale, Miss.
1,097,647. Water bottle stopper. H. P. Kraft, New York, N. Y., and M. C. Schweinert, West Hoboken, N. J.
1,097,660. Wheel and tire. A. V. Mitchell, Washington, D. C.
1,097,682. Resilient tire. H. J. Sherrill, Salida, Col.
1,097,746. Hose nozzle holder. F. H. Benton, Denver, Col.
1,097,820. Puncture proof inner lining for pneumatic tires. W. A. Ray, Jackson, Ohio.
1,097,824. Resilient filler for elastic vehicle tires. C. S. Staten, Dallas, Tex.
1,097,829. Resilient wheel. C. O. Vantrease, Nashville, Tenn.
1,097,973. Tennis or like ball. J. Gordon, Dresden, Germany.
1,098,017. Tire construction. J. H. Clune, Springfield, Mass.
1,098,028. Spring vehicle wheel. W. H. Fahrney, Chicago, Ill.
1,098,034. Garment comprising an elastic waist band. L. Goldfinger, Chicago, Ill.
1,098,043. Tire chain. P. F. Larson, Chicago, Ill.
1,098,102. Testing machine. C. L. Elmes, Winnetka, Ill.
1,098,103. Spare tire holder. A. Freschl, Detroit, Mich.
1,098,110. Life saving garment. E. Heberlein, Oceanpark, Cal.
1,098,163. Rim for vehicle wheels. T. Midgley, Worthington, Ohio.
1,098,173. Tire inflating apparatus. F. A. Ruff, Newark, N. J.
1,098,191. Vehicle wheel tire. I. C. Terry, Monroe, La.
1,098,194. Molding machine. O. J. Vesper, Ashland, Ohio.
1,098,220. Syringe. F. Borsody, New York, N. Y.
1,098,222. Sanitary medicament ejector for rectal, vaginal and nasal uses. C. E. Brasefield, assignor of one-half to E. F. Heffner—both of Pottsville, Pa.
1,098,265. Hose coupling. J. F. James, Billings, Mont.
1,098,286. Closure for inflatable bodies. T. W. Miller, assignor to the Faultless Rubber Co.—both of Ashland, Ohio.
1,098,287. Eraser holder. C. E. Moon, Lakeport, Cal.
1,098,294. Hose coupling. C. R. Patty, Memphis, Tenn.
1,098,303. Sounding figure toy with inflatable part. A. Steiner, O. Liebermann and C. Scharfenberg, Sonneberg, Germany, assignors to L. Rees, London, England.
1,098,311. Apparatus for making molds. G. E. Burns, Central Falls, R. I.
1,098,331. Artificial denture. C. Rauhe, Dusseldorf, Germany.
1,098,364. Tire. H. C. Seipp, Pittsburgh, Pa.

Reissue.

13,735. Method of separating barytes from ores. C. J. Greenstreet, Webster Groves, Mo.

Trade Marks.

69,658. I. B. Kleinert Rubber Co., New York, N. Y. The word *Stayrite*. For dress shields.
72,511. G. Dorne, Newport, Ky. The word *Aromint* in a fancy design. For chewing gum.
76,146. The Mansfield Tire & Rubber Co., Mansfield, Ohio. The word *Ford* in design forming the letter F. For rubber automobile and vehicle tires.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1913.
**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 6, 1914.]

*945 (1913). Spring wheel. B. Manley, W. P. Thacker and R. B. Barnard, Nokomis, Ill., U. S. A.
956 (1913). Machine for measuring continuous lengths of materials. H. W. Mettler, 3, Bogenstrasse, St. Gallen, Switzerland.
968 (1913). Spring wheels for vehicles. B. E. D. Kilburn, Chancery Lane Station Chambers, London.
975 (1913). Caoutchouc substances. J. Y. Johnson, 47 Lincoln's Inn Fields, London.
976 (1913). Isoprene. J. Y. Johnson, 47 Lincoln's Inn Fields, London.
985 (1913). Reinforcement for pneumatic tire covers or repair patches. G. Huysmans, 136 Rue de la Loi, Brussels, Belgium.
1,043 (1913). Rubber packing rings in piston cooling. V. Mickelson, 172 Lancefield street, Glasgow.
*1,051 (1913). Teething pads, etc. J. S. Bridges, 7 East Madison street, Chicago, Ill., U. S. A.
1,070 (1913). Vehicle wheel comprising a solid rubber ring on an inner metal ring. E. W. Beech, 32 Lincoln Road, Peterborough.
1,077 (1913). Tires with rims enclosing air tubes or chambers. J. Aukett, 13 Gertrude street, Fulham Road, Chelsea.
1,129 (1913). Tire attachments to rims. F. H. Harris, 36 Albert Drive, Low Fell, Durham.
1,229 (1913). Suction nozzle vacuum cleaner apparatus. W. Griffiths, Wizard Dust Extractor Co., Vulcan Works, Frankfort street, Birmingham.
1,249 (1913). Machine for feeding and stretching fabrics, comprising rubber covered metal rollers. G. Wood, 55 Bridge street, Ramsbottom, Lancashire.
1,422 (1913). Footballs. G. Pfennig, 72 Guldenstrasse, Braunschweig, Germany.
1,447 (1913). Tire fabrics. A. Woosnam, 10 New Court, Lincoln's Inn, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 13, 1914.]

1,478 (1913). Float for aerial machines comprising an inflatable air container of flexible waterproof material. H. L., A. E. and H. O. Short, 56 Prince of Wales Mansions, Queen's Road, Battersea Park, London.
1,508 (1913). Surgical gloves. Zieger & Wiegand, 21, Kirchstrasse, Volkmasdorf, Leipzig, Germany.
1,547 (1913). Projecting appliances for balls. J. Brooks, 112 St. Andrews Road, Exmouth, Devon.
1,577 (1913). Rubber packing strips for safety razor blade. C. Pflugbeil & Co., 16 Prinzessinnen Strasse, Berlin.
1,579 (1913). Tire vulcanizers. B. Kisshazy, Miskolcz, Hungary.
1,587 (1913). A protective band for pneumatic tires. A. E. Soper, 53 West Side, Clapham Common, London.
*1,621 (1913). Spring wheel with continuous outer rigid ring and helical springs. T. T. Chaloner, 506 West Forty-seventh street, New York, N. Y., U. S. A.
1,668 (1913). Cow milkers. W. H. Lawrence, 35 Melville street, Pollokshields, Glasgow.
1,746 (1913). Cover for spare tires, of waterproof fabric. B. Brooks, Criterion Works, Great Charles street, Birmingham.
*1,839 (1913). A cushion tire. W. D. McCormack, 1218 Second avenue, South, Nashville, Tenn., U. S. A.
1,972 (1913). Balloon fabrics. B. D. Porritt and North British Rubber Co., Castle Mills, Fountainbridge, Edinburgh.
1,976 (1913). Machine for making pneumatic tire covers. A. Mathern, Zollikon, Switzerland.
2,020 (1913). Securing billiard pocket to table by means of rubber covered rings. P. C. Watts, 23 Alexandra Road, East Twickenham, Middlesex.
2,064 (1913). Masticating machine for india rubber. J. E. Pointon, Westwood Works, Peterborough.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 20, 1914.]

2,097 (1913). India rubber in apparatus for splitting skins. G. W. Johnson, 47 Lincoln's Inn Fields, London.
*2,194 (1913). Spring wheel. W. C. Fickes, Shirland, Ill., U. S. A.
2,242 (1913). Wheel tire. M. D. Rucker, Foxley Lane, Purley, Surrey.
2,256 (1913). A rubber attachment for the handles of golf clubs, tennis rackets, cricket bats, etc. E. G. Morley, 112 High Holburn, London.
*2,286 (1913). Rectal douches. M. Iversen, 811 Ridge street, Stoughton, Wis., U. S. A.
2,314 (1913). Breathing bags. D. C. H. Schumann and Hanseatische Apparatebau-Ges vorm. L. Von Bremen & Co., 35 Rodingsmarket, Hamburg, Germany.
2,430 (1913). Wind guards for vehicles, comprising rubber strips. H. Brittain, 77 Alston street, Ladywood, Birmingham.
*2,493 (1913). Dress shields. D. Basch, 199 Wooster street, New York, N. Y., U. S. A.
2,558 (1913). Tread bands projections and surfaces. A. W. Farnan, 90 Lee Road, Blackheath, London.
2,580 (1913). Tread projections and surfaces; rims. J. F. F. W. Ure, 13 Trinity Gardens, Folkestone, Kent.
2,594 (1913). Wheel tires. R. Ruwet, 218 Chaussee de Waterloo, and V. Carre, 27 Place de Parvis—both in St. Gilles, Brussels.
2,617 (1913). Tread projections for wheel tires. W. H. Terry, 845 Dovercourt Road, Toronto, Ont., Canada.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 27, 1914.]

2,777 (1913). Erythrene. P. A. Newton, 6 Breams Buildings, Chancery Lane, London.

2,817 (1913). Apparatus for detecting and closing punctures in pneumatic tires. R. W. Sampson, 353 Olivier avenue, Westmount, Que., Canada.

*2,877 (1913). Waterproof coats. J. H. Brown and J. H. Brown, Box 764, Marseilles, Ill., U. S. A.

*2,906 (1913). Hose. F. D. Voorhees, 38 Vesey street, New York, N. Y., U. S. A.

*2,925 (1913). An elastic core for insertion in an outer tire cover. W. S. Brooks, 3240 North Summit street, Akron, Ohio, U. S. A.

*2,970 (1913). Elastic tires to which metal studs are secured. F. E. Blaisdell and J. G. C. Mantle, 1907 Park avenue, New York, N. Y., U. S. A.

2,996 (1913). Inking apparatus comprising dexine or semi-vulcanized india rubber rollers. W. R. Williamson, 76 North Side, Clapham Common, London.

3,038,(1913). Spring wheels. A. van der Stichelen, Rue de Patyntje, Ghent, Belgium.

3,043 (1913). Hose pipe connection. P. E. Pownall, Lyddons Mead, Chard, Somersetshire.

3,045 (1913). Polymerization processes; synthetic caoutchouc. E. H. Strange, 7 Staple Inn, and H. G. W. Bliss, Ingram House, Stockwell—both in London.

3,046 (1913). Magnetic separator. Bowes, Scott & Western, Broadway Chambers, Westminster, and I. S. Dalgleish, 26, Drayton's Court, Drayton Gardens, London.

3,076 (1913). A tool for removing and replacing elastic tires. Rudge-Whitworth, Ltd., Rudge Works, Coventry, and J. G. Pugh, Guiting House, Allesley, Warwickshire.

*3,094 (1913). Spring wheels with sectional outer guided members. W. F. Beaseley, 2901 Calvert street, Baltimore, Md., U. S. A.

3,140 (1913). A rasping tool for tapping rubber trees. W. F. Barns, Enggor Perak, Malay States.

3,169 (1913). Precipitating viscose. L. Leduc, Couture, St. Germain, and H. M. Jacquemin, Maransart—both in Belgium.

3,193 (1913). Device for tapping rubber trees. R. Hoffmann, 139 Cannon street, London.

3,247 (1913). Spring wheel with continuous outer resilient suspension ring. Soc. E. Robergel et Fils, 81, Rue Marceau, Montreuil, Seine, France.

3,256 (1913). Tread bands projections and surfaces. D. Maggiora, Hackbridge Park, Hackbridge, Surrey.

3,257 (1913). Wheel tires. D. Maggiora, Hackbridge Park, Hackbridge, Surrey.

3,271 (1913). Synthetic resins; electric insulations or dextrine. British Thompson Houston Co., 83 Cannon street, London.

3,276 (1913). Reinforcements, jackets and covers for pneumatic tires. T. Morris, 33 Wollaston Road, Cleethorpes, Lincolnshire.

*3,294 (1913). Non-metallic elastic bodies and cores; tire attachments to rims. J. M. Miller, Victoria Apartments, Fourteenth street, Washington, D. C., U. S. A.

*3,310 (1913). Spring wheel with continuous outer rigid ring and helical springs. M. Mathiesen, San Antonio, Bexar, Texas, U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (With Dates of Application).

464,621 (October 31, 1913). Covers or wheel tires with iron hoods; improvements in vulcanization. P. Chevalier.

464,633 (November 7). Process to accelerate action of natural or artificial rubber. Farbenfabriken vorm. Friedr. Bayer & Co.

464,673 (November 8). Improvements in elastic tires. F. C. Wickel.

464,733 (November 10). Elastic tire. R. Curry.

464,757 (November 11). Anti-skid tire. F. W. Kremer.

464,758 (November 11). Machine for manufacture of rubber tubes or hose. F. W. Kremer.

464,759 (November 11). Process of soldering rubber tubes. F. W. Kremer.

464,848 (November 12). Tread, particularly for motorcycles. Russian American India Rubber Co., Trengolnik.

464,939 (January 24). New shock absorbing tire for vehicles. C. E. C. Donaudy and E. A. A. Blavinhac.

465,013 (November 18). Improvements in tire casings. H. Gregoire.

465,047 (November 18). Process of manufacture of soft products similar to rubber. W. Plinatus.

465,065 (November 19). Elastic tire. G. Lanzdorf.

465,140 (November 20). Protective band for air chambers of pneumatic tires. R. Berthold.

465,149 (November 20). Improvements in pneumatic tire covers. L. S. Butler.

465,221 (November 22). Anti-skid for vehicle wheels. T. J. Clark.

465,226 (November 22). Improvements in elastic tires. Madame Vve. Thibal.

465,228 (November 22). Protective metallic device for pneumatic tires. A. Bisson and G. O. Delattre.

465,245 (January 31). Process for utilizing objects in worn rubber. E. Lapisse.

465,259 (November 24). Air chamber for automobiles, motorcycles, bicycles, etc. E. L. C. Schiff.

465,267 (November 24). Elastic heel adaptable to all footwear. D. Levy.

465,306 (November 25). Process of preparing elastic or plastic masses. J. Stockhauser.

465,345 (November 26). Plastic extra soft substances and their process of manufacture. "L'Oyonnithe" (new company).

464,696 (November 10). Buckles, rings and elastic tabs for suspenders and their process of manufacture. G. A. Harti.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (With Dates of Validity).

274,348, Class 12o (April 14, 1912). Process for the production of carbohydrates suited for transformation into rubber or similar masses. Dr. Kurt Gottloo, Vohwinkel, near Elberfeld.

274,173, Class 30e (June 14, 1913). Air cushion. Wenzel Fürtsch, Hellenthal, Rhineland.

274,179, Class 39b (June 29, 1913). Process for manufacture of solid plastic masses. Karl Hagendorf, Baufelde b. Fredersdorf a. d. Ostbahn, and Dr. Adolf Breslauer, Berlin-Halensee.

274,554, Class 39a (November 12, 1912). Process for manufacture of hose from a mass of glue, glycerine and powdered substances. K. Albin Gärtner and K. August Netzler, Wiesa, Saxony.

274,811, Class 63e (June 8, 1913). Solid rubber tires with wire spirals arranged in several superincumbent layers, imbedded in the mass of rubber. Hermann Richter, Weisser Hirsch b. Dresden.

275,061, Class 39b (February 11, 1913). Process for renovation of old rubber. Dr. Ludwig Sachs, Pozsony-Ligetfaler, Hungary.

275,143, Class 63e (February 2, 1913). Anti-skid device on rubber tires consisting of metal plates. Carl Schmidt, Ichenhausen, Bavaria.

275,144, Class 63e (November 8, 1912). Pneumatic tires with elastic treads. Max Schwertführer, Brussels.

275,160, Class 39b (July 24, 1912). Process for the production of plastic masses. Dr. Walther Wolff & Co., G. m. b. H. Elberfeld.

275,237, Class 63e (February 12, 1913). Pneumatic tires with two separated air chambers. Jules Louis Didier, St. Cloud, France.

THE KINGDOM OF BELGIUM.

PATENTS PUBLISHED.

265,046 (April, 1914). Improvements in rubber tires and in manner of attaching them to and detaching them from vehicle wheels. E. B. Killen, 27 Queen Victoria street, London, E.C.

264,806 (April, 1914). Improvements in the treatment of vulcanized rubberized fabrics or other similar articles, with a view to their preservation. W. E. Muntz, 89-91 Pall Mall, London.

A NEW PROSPECTUS BY THE WATERHOUSE COMPANY.

The plantation enterprises of The Waterhouse Co., Ltd., of Honolulu, in which the two Waterhouse brothers — Albert and Frederick — are so prominent, have been mentioned in the columns of THE INDIA RUBBER WORLD a number of times. The Waterhouses were the first Americans to plant *Hevea* in the Far East, their first operations dating back some ten years. They acquired two large plantations in the Federated Malay States, one in Pahang, about sixty miles from Kuala Lumpur, and the other on the Muar River, in the State of Johore. On the first of these plantations they were already tapping 10,000 rubber trees three years ago, and they now have an extensive acreage under rubber in both their plantations.

They have recently issued a prospectus covering a new development, known as the Endau Development Co., Ltd. This company has acquired a tract of 25,000 acres on the river Endau, on the east shore of the Federated Malay States and about 80 miles north of Singapore. It has always been held that there was no safe harbor along the east shore, and for that reason there has been but little development there; but the men who prospected for the Waterhouse company discovered what they consider a perfectly safe and sizable harbor at the mouth of the river Endau, and they have got this large grant of land under very favorable conditions. They expect not only to profit by the production of cocoanuts, rubber and other kinds of planting, but they believe that from the nature of the location of this new tract, viz., its harbor facilities, population will be drawn to this spot and quite a town be built upon it in the near future.

They expect to sell a certain number of shares in the new enterprise to the public, but just upon what basis has not yet been determined.

The Goodyear Rubber Co. building on East Water street, Milwaukee, Wisconsin, destroyed by fire on October 26 last, is to be replaced by a modern mercantile structure which will cost approximately $100,000. A permit has been granted for the erection of a building of fireproof construction six stories high and 50 x 119 feet in area.

Review of the Crude Rubber Market.

AS it will be recalled, fine Pará and plantation rubbers were on a level on April 17, at 3*s.* 0½*d* (73.99 cents). By May 25 they had dropped respectively to 2*s.* 9¾*d.* (68.41 cents) and 2*s.* 4*d* (56.76 cents). Up to June 23 these two quotations ruled, with slight fluctuations. On June 24 plantation rubber dropped from 2*s.* 4¼*d.* (57.27 cents) to 2*s.* 3*d* (54.73 cents). This reduced quotation was still current on June 25, while fine Pará maintained the price of 2*s.* 9¾*d.* (68.41 cents), which had been in force on May 25, as compared with the figure of plantation rubber at that time of 2*s.* 4*d.* (56.76 cents). Thus, while fine Pará has kept its ground, plantation has dropped a penny, or about 2 cents, for the month.

Business on both sides of the water has reflected the indisposition of manufacturers to anticipate their requirements. When they have done so, it has been at a lower basis of price than was current for spot rubber in the principal markets. Thus one sale was reported of 100 tons plantation rubber at 54 cents; it being remarked that American dealers are willing to take on business at prices under those quoted by London operators.

Statistical returns show that the increase in Malayan supplies continues. Exports of rubber from the Federated Malay States for the first five months of this year were 11,544 tons, against 5,836 tons and 8,476 tons for the corresponding periods of 1912 and 1913. Aggregate shipments of all kinds of plantation rubber during the period from January 1 to May 31 were 19,866 tons, against 14,511 tons for the corresponding period of 1913; this result showing an increase of nearly 40 per cent.

The depreciation of rubber in the English market is illustrated by the fact that while receipts of all classes of rubber in the United Kingdom during the first four months of 1913 were 26,072 tons, with a value of $46,612,720, this year's record for the same period was 26,371 tons, valued at $30,830,990. Deliveries this year have been in excess of receipts.

Imports into the United States were heavy during the month of April, reaching 16,642,211 pounds as compared with 8,859,633 pounds in April, 1913. The totals for the ten months ending with April were: 1912—93,592,190 pounds; 1913—95,854,130 pounds; 1914—106,295,902 pounds.

After a postponement in consequence of the Whitsuntide holidays, the normal fortnightly London sales were resumed on June 9, when about 1,200 tons of plantation rubber were offered. This quantity met with fairly active competition, and the prices realized did not materially vary from those of the preceding sale. On the occasion of the auction of June 23 about 1,000 tons were brought forward; the prices obtained being in some cases somewhat above those of the preceding auction.

The Antwerp market gradually declined during the month of May, spot rubber being quoted at the end of the month about 15 per cent. below the level of the commencement. It would seem that the lower prices had stimulated business, as transactions aggregated 2,275 tons, against 1,370 tons for the corresponding period of last year. Stock at the end of May amounted to 356 tons as compared with 1,054 tons at the corresponding period of 1913. For June 23, a sale was announced of 77 tons Congo and 154 tons plantation.

At the Rotterdam sale of June 5, the offerings amounted to 55½ tons, of which quantity about three-quarters consisted of plantation rubber, which displayed a somewhat lower tendency, in harmony with the market. For the Congo qualities, the low prices offered were refused by sellers.

Nearly the whole of the quantity of 136 tons offered at Amsterdam May 27 (chiefly plantation) was sold at ruling quotations, although below valuations. A quantity of about 110 tons plantation rubber was announced for the Amsterdam sale of June 26.

Hamburg reports state that during the greater part of April and May consumers had kept aloof from the market; prices having given way during May. From the latter days of May a better feeling was recorded, particularly as to forward business.

NEW YORK QUOTATIONS.

Following are the quotations at New York one year ago, one month ago, and June 29, the current date:

PARA.	July 1, '13.	June 1,'14.	June 29, '14.
Islands, fine, new	82@83	61@63	58@59
Islands, fine, old	.....	63@64	59@60
Upriver, fine, new	87@88	70@71	68½@69
Upriver, fine, old	.....	71@73	69½@70
Islands, coarse, new	34@35	29@30	28@29
Islands, coarse, old	.....	.....	.....
Upriver, coarse, new	54@56	42@43	39½@41
Upriver, coarse, old	.....	.....	.....
Cameta	42@43	32@33	31½@32½
Caucho, upper	53@54	42@43	39@40
Caucho, lower	.....	.....	36@37
PLANTATION CEYLON.			
Fine smoked sheet	72@73	57@59	57@63
Fine pale crepe, near-by	70@72	57@59	56@57
Fine pale crepe, forward			55½@56½
Fine sheets and biscuits unsmoked	70@71	55@57	56@57½
CENTRALS.			
Corinto	.....	.....	41@42
Esmeralda, sausage	53@54	43@44	39@40
Guayaquil, strip	.....	.....	.....
Nicaragua, scrap	53@54	42@43	38@40
Panama	.....	.....	.....
Mexican plantation, sheet	.....	43@46	42@48
Mexican, scrap	53@57	40@42	38@40
Mexican, slab	.....	.....	.....
Mangabeira, sheet	.....	40@42	.....
Guayule	.....	.....	25@35
Balata, sheet	.....	64@65	45@48
Balata, block	.....	46@49	.....
AFRICAN.			
Lopori, ball, prime	.....	49@53	45@52
Lopori, strip, prime	.....	.....	.....
Aruwimi	.....	35@47	35@46
Upper Congo, ball red	.....	40@	38@42
Ikelemba	.....	35@45	35@45
Sierra Leone, 1st quality	.....	37@40	35@40
Massai, red	.....	48@50	48@50
Soudan Niggers	.....	40@42	38@40
Cameroon, ball	.....	25@33	25@35
Benguela	.....	31@32	27@32
Madagascar, pinky	.....	.....	.....
Accra, flake	.....	22@23	22½@23

STATISTICS PARA INDIA RUBBER (IN TONS), INCLUDING CAUCHO.

STATISTICS FOR THE MONTH OF MAY.

	Pará.	Caucho.	1914. Tons.		1913. Tons.	1912. Tons.	1911. Tons.
Receipts at Pará	1,680	1,210 =	2,890	against	2,880	3,410	3,060
Shipments to Liverpool	510	420 =	930	"	1,320	810	1,410
Shipments to Continental Ports	370	230 =	600	"	400	320	300
Shipments to America	1,340	570 =	1,910	"	1,610	1,900	1,010
American Imports	1,340	760 =	2,100	"	1,290	1,480	1,170
American Deliveries	1,290	730 =	2,020	"	1,340	1,480	1,470
Liverpool Imports	970	530 =	1,500	"	1,530	1,257	1,517
Liverpool Deliveries	975	530 =	1,505	"	1,657	1,417	1,446
Continental Imports	340	160 =	500	"	210	330	330
Continental Deliveries	360	160 =	520	"	180	240	310

VISIBLE SUPPLY—1ST JUNE, 1914.

	1914. Pará.	1914. Caucho.	1913.	1912.	1911.
Stock in England, Pará, 1st hands	610	...	1,033		
Pará, 2nd hands	110	...	129	1,270	4,200
Caucho	...	310	594	290	860
Stock in Pará, 1st hands	180	260	540	520	1,540
2nd hands	90	40	100	760	690
Syndicate	800	...	810	2,240	2,810
Stock in America	270	140	180	180	340
Stock on Continent	20	10	380	130	90
Afloat—Europe	350	410	1,390	700	890
Afloat—America	760	300	940	790	620
	3,190	1,470			
Total Visible Supply, including Caucho.	4,660		6,096	6,880	12,040

CROP STATISTICS—30TH JUNE, 1913, 31ST MAY, 1914.

		Pará.	Caucho.	1913/14.	1912/13.	1911/12.	1910/11.
Pará receipts	1913/14	28,180	8,900	37,080	39,850	36,790	35,780
	1912/13	31,010	8,840				
Pará Shipments to Europe		14,200	4,560	18,760	22,850	18,390	18,590
Pará Shipments to America		13,950	4,100	18,050	18,710	19,400	12,650
England Landings, net				13,765	16,492	13,780	14,350
England Deliveries, net				14,585	16,106	17,290	12,059
America Lardings, net				17,290	18,010	21,225	13,260
America Deliveries, net				17,050	18,000	20,945	13,060
Continental Imports, net				3,800	4,570	3,200	3,000
Continental Deliveries, net				4,020	4,285	3,180	2,960

POSITION—1ST JUNE, 1914.

Increase in Receipts during May, 1914, against May, 1913..... 10
Decrease in Receipts—Crop, July/May, 1913/14, against 1912/13.....*2,770
Decrease in Deliveries—Crop, July/May, 1913/14, England and Continent, against 1912/13..... 1,786
Decrease in Deliveries—Crop, July/May, 1913/14, America, against 1912/13..... 950
Decrease in Visible Supply Pará Grades, against 1st June last year... 1,436
Decrease in Stock, England, May 31st, 1914, against May 31st, 1913.. 726

WM. WRIGHT & CO., Brokers,
London, 4th June, 1914. 21, Mincing Lane, London, E.C.

During the month 50 tons Pará have been shipped from Europe to America.

*A decrease of 2,830 tons Rubber, and increase of 60 tons Caucho.

Rotterdam.

HAVELAAR & DE VRIES report [June 4]:

The quantities announced for tomorrow's sale include 14 tons Congo, 26 tons *Hevea* and 9 tons *Ficus*.

Amsterdam.

JOOSTEN & JANSSEN report [May 27]:

On account of the weaker tone ruling in the market, today's sale displayed a rather quiet tendency; prices for *Hevea* being on the whole somewhat below the parity of those abroad. The next subscription sale of about 110 tons, nearly all plantation, is announced for June 26.

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound:

	June 29, '14.
Old rubber boots and shoes—domestic	6⅞@ 7
Old rubber boots and shoes—foreign	6½@ 6¾
Pneumatic bicycle tires	3¾@ 4
Automobile tires	5 @ 5⅛
Solid rubber wagon and carriage tires	5 @
White trimmed rubber	10 @10¼
Heavy black rubber	3¾@ 4
Air brake hose	3⅛@
Garden hose	1 @ 1¼
Fire and large hose	2 @ 2⅛
Matting	⅝@ ¾
No. 1 white auto tires	5½@
Foreign auto tires	4⅞@ 5

Antwerp.

RUBBER STATISTICS FOR MAY.

DETAILS.	1914.	1913.	1912.	1911.	1910.
Stocks, April 1...*kilos*	250,189	990,270	437,513	599,114	470,468
Arrivals in May—					
Congo sorts	308,189	241,989	152,024	187,106	128,052
Other sorts	10,565	3,205	12,902	29,125	17,969
Plantation sorts	168,965	184,398	107,367	41,754	44,037
Aggregating	737,908	1,419,862	709,806	857,099	660,526
Sales in May	381,723	365,869	265,369	243,089	116,663
Stocks, May 31	356,185	1,053,993	444,437	614,010	543,863
Arrivals since Jan. 1—					
Congo sorts	1,151,685	1,318,775	1,243,101	1,259,621	1,299,338
Other sorts	63,383	46,521	58,637	235,093	138,138
Plantation sorts	1,113,855	868,109	514,692	299,316	222,131
Aggregating	2,328,923	2,233,405	1,816,430	1,794,030	1,659,607
Sales since January 1	2,532,019	1,690,472	2,046,531	1,768,232	1,657,256

RUBBER ARRIVALS FROM THE CONGO.

MAY 26.—By the steamer *Albertville:*

Bunge & Co	(Comp. Commerciale Congolaise) *kilos*	32,000	
do	(Cie du Congo belge)	500	
do	(Grands Lacs)	8,700	
do	(Kasai)	21,800	
do	(Comfina)	5,700	
do	(Forminière)	1,400	
do		3,500	
Société Coloniale Anversoise	(Comminière)	45,200	
do	(H. C.)	1,400	
do	(Cie franç. du H. C.)	5,800	
Crédit Colonial & Commercial (Anc. L. & W. Van de Velde)	(Crevelde)	3,200	
do	(Velde)	2,500	
Osterrieth & Co	(Cie du Lubefu)	8,000	
Comp. Colonial franco-belge (Charles Dethier)	(N'Kémé & N'Kéni)	2,900	
Willaert Frères		1,000	143,600

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

(From January 1 to May 18, 1913 and 1914. Compiled by the Ceylon Chamber of Commerce.)

	1913.	1914.
To Great Britain ...*pounds*	3,980,582	6,041,603
To United States	2,599,367	3,321,834
To Belgium	1,055,089	1,946,292
To Australia	220,151	44,423
To Germany	97,306	667,047
To Japan	81,461	152,511
To Austria	26,075	.....
To Italy	22,460	.....
To Holland	992	.....
To India	209	500
To Russia	.....	98,482
To France	.....	98,373
To Straits Settlements	.....	35,852
Total	8,083,692	12,406,917

(Same period, 1912, 4,077,628; same period, 1911, 1,796,522.)

The export figures of rubber given in the above table include the imports re-exported. These amount to 1,563,077 pounds—1,286,109 pounds from the Straits and 265,344 pounds from India. To arrive at the approximate quantity of Ceylon rubber exported to date, deduct the quantity of imports shown in the import table from the total exports.

TOTAL EXPORTS FROM MALAYA.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore, May 18	Malacca, April 30	Penang, April 30	Port Swettenham, May 15	Total
Great Britain..*pounds*	8,223,602	1,772,527	5,881,067	8,973,521	24,850,717
Continent	989,255	.....	240,533	1,101,323	2,331,111
Japan	326,145	.....	.....	.....	326,145
Ceylon	133,829	.....	359,733	648,843	1,142,405
United States	4,200,594	.....	339,067	136,590	4,676,251
Australia	27,883	.....	.....	.....	27,883
Total, 1914	13,901,308	1,772,527	6,820,400	10,860,277	33,354,512
Total, 1913	9,529,315	.....	4,589,733	10,530,769	24,649,817
Total, 1912	4,947,297	.....	2,363,322	7,382,645	14,693,264
Total, 1911	2,076,554	.....	1,480,300	4,494,251	8,051,105

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"The commercial paper situation has remained practically the same in June as for April and May, the demand for paper continuing good, and the best rubber names ruling at 4@4½ per cent., and those not so well known from 5@6 per cent."

NEW YORK PRICES FOR MAY (NEW RUBBER).

	1914.	1913.	1912.
Upriver, fine	$0.70@0.74	$0.81@0.92	$1.09@1.12
Upriver, coarse	.42@ .46	.54@ .61	.89@ .92
Islands, fine	.60@ .72	.78@ .83	1.05@1.10
Islands, coarse	.29@ .32	.38@ .42	.58@ .63
Cametá	.33@ .37	.42@ .45	.65@ .67

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weight in Pounds.*]

MAY 29.—By the steamer *Pacias* from Para and Manaos:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	88,200	13,000	89,400	400=	191,000
General Rubber Co.	29,000	5,300	12,400	26,900=	73,600
Meyer & Brown	42,800	8,700	36,200	146,400=	234,100
Robinson & Co.	133,700	22,200	52,100	44,400=	252,400
Henderson & Korn	81,700	.....	36,500	54,700=	172,900
H. A. Astlett & Co.	59,400	12,400	4,500	67,300=	143,600
Hagemeyer & Brunn	7,100	1,100	30,400	.....=	38,600
W. R. Grace & Co.	.....	.....	.....	27,300=	27,300
Johnstone, Whitworth & Co.	20,800	3,500	7,000	.....=	31,300
G. Amsinck & Co.	3,200	.....	2,000	2,900=	8,100
Total	465,900	66,200	270,500	370,300=	1,172,900

PARA RUBBER VIA EUROPE.

		Pounds.
MAY 21.—By the *Batavia*=Hamburg:		
Rubber & Guayule Agency, Inc. (Fine)		5,000
MAY 26.—By the *Vaderland*=Antwerp:		
Various (Fine)		22,500
MAY 28.—By the *Victorian*=Liverpool:		
Johnstone, Whitworth & Co. (Fine)	11,200	
Various (Fine)	9,000	20,200
JUNE 1.—By the *Carmania*=Liverpool:		
Arnold & Zeiss (Fine)	7,000	
Arnold & Zeiss (Coarse)	2,000	
Various (Coarse)	11,200	20,200
JUNE 1.—By the *Kaiserin Auguste Victoria*—Hamburg:		
Henderson & Korn (Fine)	2,200	
Henderson & Korn (Coarse)	2,200	4,400
JUNE 1.—By the *Baltic*=Liverpool:		
Johnstone, Whitworth & Co. (Fine)	17,000	
W. R. Grace & Co. (Fine)	3,500	
Various (Fine)	11,200	
Various (Coarse)	11,200	42,900
JUNE 1.—By the *Matura*=Ciudad Bolivar:		
General Export & Commission Co. (Fine)	3,500	
Yglesias, Lobo & Co. (Coarse)	600	4,100
JUNE 5.—By the *Aquitania*=Liverpool:		
Various (Caucho)		4,500
JUNE 5.—By the *Pretoria*=Hamburg:		
Meyer & Brown (Fine)		12,000
JUNE 6.—By the *Adriatic*=Liverpool:		
Johnstone, Whitworth & Co. (Fine)		19,000
JUNE 10.—By the *President Grant*=Hamburg:		
Rubber & Guayule Agency, Inc. (Fine)	13,500	
Various (Fine)	70,000	83,500
JUNE 13.—By the *Cedric*=Liverpool:		
Meyer & Brown (Fine)		17,000
JUNE 19.—By the *Lusitania*=Liverpool:		
Meyer & Brown (Fine)	22,500	
Various (Fine)	6,500	29,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

		Pounds.
MAY 22.—By the *Prinz August Wilhelm*=Colon:		
A. L. Morens	300	
Isaac Brandon & Bros.	700	1,000
MAY 23.—By the *Zacapa*=Colombia:		
A. Held		9,500
MAY 25.—By the *Virginia*=Colombia:		
Pottberg, Ebeling & Co.	2,000	
Various	1,200	3,200
MAY 25.—By the *Suriname*=Belize:		
Eggers & Heinlein	500	
MAY 25.—By the *Byron*=Bahia:		
Rossbach Bros. & Co.	33,500	
Adolph Hirsch & Co.	13,500	47,000
JUNE 3.—By the *Thespia*=Bahia:		
Adolph Hirsch & Co.		6,000
MAY 27.—By the *Prinz Sigismund*=Colon:		
Gravenhorst & Co.		500
JUNE 1.—By the *Allemania*=Colombia:		
Caballero & Blanco	200	
Various	1,200	1,400
JUNE 2.—By the *Tenadores*=Port Limon:		
Suzarte & Whitney		2,000
JUNE 3.—By the *Danube*=Colon:		
G. Amsinck & Co.	2,000	
A. M. Capen's Sons	7,000	
H. Wolff & Co.	1,500	10,500
JUNE 3.—By the *Prinz Joachim*=Colon:		
A. M. Capen's Sons	1,500	
Camacho, Roldan & Van Sickel	300	1,800
JUNE 4.—By the *Advance*=Colon:		
G. Amsinck & Co.	9,400	
J. S. Sembrada & Co.	3,000	
Pablo Calvet & Co.	6,000	
Mecke & Co.	1,300	
R. G. Barthold & Co.	1,000	
American Trading Co.	3,300	24,000
JUNE 5.—By the *Vestris*=Bahia:		
J. H. Rossbach Bros. & Co.	18,000	
Adolph Hirsch & Co.	8,000	26,000
JUNE 9.—By the *Graecia*=Colombia:		
Various		3,000
JUNE 15.—By the *Albingia*=Colombia:		
A. Held & Co.		20,500
JUNE 15.—By the *Allianca*=Colon:		
C. Griffin	1,300	
G. Amsinck & Co.	900	
Dumarest Bros.	600	2,800
JUNE 17.—By the *Prinz August Wilhelm*=Colombia:		
Isaac Brandon & Bros.		500
JUNE 20.—By the *Ancon*=Colon:		
G. Amsinck & Co.	14,200	
Mecke & Co.	2,100	
Wessels, Kulenkampff & Co.	1,000	17,300

EAST INDIAN.

[*Denotes plantation rubber.]

		Pounds.
MAY 20.—By the *Oceanic*=Southampton:		
Arnold & Zeiss	*24,000	
Robinson & Co.	*7,500	
Ed. Maurer	*36,500	
Raw Products Co.	*11,200	
Rubber & Guayule Agency, Inc.	*27,000	
Goodyear Tire & Rubber Co.	*25,000	
Various	*30,000	*161,200
MAY 21.—By the *Batavia*=Hamburg:		
W. R. Grace & Co.	*11,200	
W. Stiles	*11,200	
Henderson & Korn	*5,600	
Rubber & Guayule Agency, Inc.	*6,000	
Ed. Maurer	*7,000	
Various	*6,700	*47,700
MAY 23.—By the *Oceano*=Colombo:		
Meyer & Brown	*60,000	
Henderson & Korn	*10,000	
Arnold & Zeiss	*10,000	
Rubber & Guayule Agency, Inc.	*37,500	
W. Stiles	*4,000	
Robinson & Co.	*5,600	
W. R. Grace & Co.	*40,000	
Various	*60,000	*227,100
MAY 25.—By the *Philadelphia*=Southampton:		
Meyer & Brown	*50,000	
W. Stiles	*6,700	
Ed. Maurer	*33,500	
Arnold & Zeiss	*30,000	
Rubber Trading Co.	*47,500	
W. R. Grace & Co.	*7,000	*174,700
MAY 25.—By the *Ambria*=Singapore:		
Meyer & Brown	*5,600	
W. R. Grace & Co.	*4,500	
The B. F. Goodrich Co.	*55,000	
Arnold & Zeiss	*33,500	
Henderson & Korn	*9,000	
Ed. Maurer	*12,500	
Various	*70,000	*190,100
MAY 23.—By the *Hohenfels*=Colombo:		
Meyer & Brown	*81,000	
Rubber & Guayule Agency, Inc.	*36,000	
Robinson & Co.	*11,200	
W. Stiles	*15,000	
W. R. Grace & Co.	*35,000	
Henderson & Korn	*4,500	
Various	*25,000	*207,700
MAY 26.—By the *Minneapolis*=London:		
Meyer & Brown	*200,000	
General Rubber Co.	*270,000	
Ed. Boustead & Co.	*13,000	
W. R. Grace & Co.	*1,500	
Charles T. Wilson	*65,000	
Raw Products Co.	*24,000	
Henderson & Korn	*160,000	
Johnstone, Whitworth & Co.	*135,000	
Various	*142,000	*1,010,500
MAY 26.—By the *Vaderland*=Antwerp:		
Meyer & Brown	*85,000	
Various	*45,000	*130,000
MAY 27.—By the *Olympic*—Southampton:		
Meyer & Brown	*15,500	
Earle Bros.	*5,600	
Rubber Trading Co.	*8,000	
Arnold & Zeiss	*22,500	
Ed. Maurer	*3,500	
Various	*47,500	*102,600
MAY 27.—By the *Potsdam*=Amsterdam:		
Robinson & Co.	*10,000	
Arnold & Zeiss	*5,000	
Various	*12,000	*27,000
MAY 29.—By the *Graf Waldersee*=Hamburg:		
Meyer & Brown	*18,000	
Henderson & Korn	*65,000	
W. Stiles	*6,700	
Arnold & Zeiss	*11,200	
Rubber & Guayule Agency, Inc.	*3,000	

Ed. Maurer	*4,000	
Rumsey & Greutert Co., Inc.	*7,200	
Various	*17,500	*132,600

JUNE 1.—By the *Minnewaska*=London:

General Rubber Co.	*190,000	
Henderson & Korn	*125,000	
Charles T. Wilson	*60,000	
Johnstone, Whitworth & Co.	*22,500	
W. R. Grace & Co.	*2,000	*399,500

JUNE 1.—By the *Kaiserin Auguste Victoria*=Hamburg:

Arnold & Zeiss	*12,500	
Rubber & Guayule Agency, Inc.	*11,200	
Henderson & Korn	*4,500	
Various	*27,000	*55,200

JUNE 1.—By the *St. Louis*=Southampton:

Ed. Maurer	*30,000	
Arnold & Zeiss	*2,000	
Rumsey & Greutert Co., Inc.	*4,431	
Various	*25,569	*62,000

JUNE 2.—By the *Kroonland*=Antwerp:

Meyer & Brown	*22,500	
Arnold & Zeiss	*4,500	
Rubber & Guayule Agency, Inc.	*4,500	
Various	*55,000	*86,500

JUNE 2.—By the *New Amsterdam*=Amsterdam:

Various		*15,000

JUNE 4.—By the *Atholl*=Singapore:

Meyer & Brown	*11,200	
Arnold & Zeiss	*42,000	
Johnstone, Whitworth & Co.	*8,000	
Ed. Boustead & Co.	*55,000	
The B. F. Goodrich Co.	*11,200	
Ed. Maurer	*30,000	
Hadden & Co.	*4,500	
Henderson & Korn	*70,000	
Goodyear Tire & Rubber Co.	*50,000	
Various	*110,000	*391,900

JUNE 4.—By the *St. Paul*=Southampton:

Meyer & Brown	*17,500	
W. Stiles	*10,000	
Ed. Maurer	*20,000	
Henderson & Korn	*4,000	
Robinson & Co.	*16,000	
Arnold & Zeiss	*4,000	
Various	*4,500	*76,000

JUNE 5.—By the *Pretoria*=Hamburg:

Ed. Maurer	*8,225	
Henderson & Korn	*1,500	
Rumsey & Greutert Co., Inc.	*13,275	*23,000

JUNE 8.—By the *Katuna*=Colombo:

Meyer & Brown	*200,000	
Rubber & Guayule Agency, Inc.	*33,500	
Arnold & Zeiss	*55,000	
Henderson & Korn	*20,000	
Robinson & Co.	*33,500	
W. Stiles	*55,000	
Johnstone, Whitworth & Co.	*55,000	
Various	*111,000	*563,000

JUNE 8.—By the *Minnehaha*=London:

Meyer & Brown	*105,000	
Henderson & Korn	*90,000	
General Rubber Co.	*385,000	
Charles T. Wilson	*75,000	
Ed. Boustead & Co.	*13,500	
Johnstone, Whitworth & Co.	*50,000	
Raw Products Co.	*10,000	
W. Stiles	*9,000	
Robert Badenhop	*6,700	
Various	*90,000	*834,200

JUNE 9.—By the *Finland*=Antwerp:

Meyer & Brown	*62,000	
General Rubber Co.	*12,500	
Rubber & Guayule Agency, Inc.	*6,700	
Rubber Trading Co.	*22,500	
Various	*45,000	*148,700

JUNE 9.—By the *Noordam*=Amsterdam:

General Rubber Co.	*22,500	
Henderson & Korn	*9,000	
Manhattan Rubber Mfg. Co.	*7,000	*38,500

JUNE 10.—By the *President Grant*=Hamburg:

Meyer & Brown	*4,500	
Henderson & Korn	*11,200	
Guthrie & Co.	*4,500	
Rubber & Guayule Agency, Inc.	*1,100	
Ed. Maurer	*2,796	
Rumsey & Greutert Co., Inc.	*4,204	
Various	*22,500	*50,800

JUNE 10.—By the *Niagara*=Havre:

Michelin Tire Co.		*50,000

JUNE 10.—By the *Oceanic*=Southampton:

Meyer & Brown	*4,500	
W. Stiles	*3,000	
Ed. Maurer	*3,000	
Various	*2,500	*13,000

JUNE 15.—By the *Lapland*=Antwerp:

Meyer & Brown	*18,000	
Arnold & Zeiss	*14,000	
Robert Badenhop	*50,000	
Various	*50,000	*132,000

JUNE 15.—By the *New York*=Southampton:

Ed. Maurer	*11,200	
Rumsey & Greutert Co., Inc.	*7,956	
Various	*22,044	*41,200

JUNE 15.—By the *Wildenfels*=Colombo:

Meyer & Brown	*21,000	
Rubber & Guayule Agency, Inc.	*15,000	
Arnold & Zeiss	*12,500	
W. Stiles	*7,500	
Robinson & Co.	*11,200	
Various	*95,000	*162,200

JUNE 15.—By the *Minnetonka*=London:

General Rubber Co.	*265,000	
Charles T. Wilson	*60,000	
Henderson & Korn	*22,500	
Ed. Maurer	*26,500	
Johnstone, Whitworth & Co.	*11,200	
Rubber & Guayule Agency, Inc.	*4,500	
Ed. Boustead & Co.	*2,500	
Various	*30,000	*422,200

JUNE 16.—By the *Ryndam*=Amsterdam:

Arnold & Zeiss	*13,500	
Johnstone, Whitworth & Co.	*1,100	
Rubber Trading Co.	*11,200	
Various	*37,000	*62,800

JUNE 17.—By the *Olympic*=Southampton:

Robinson & Co.	*22,500	
Arnold & Zeiss	*3,500	
Rubber Trading Co.	*6,700	
Charles T. Wilson	*3,500	
United Malaysian Rubber Co.	*1,100	
Various	*80,000	*117,300

JUNE 18.—By the *Pennsylvania*=Hamburg:

Ed. Maurer		*20,000

AFRICAN.

	Pounds.	
MAY 21.—By the *Batavia*=Hamburg:		
Rubber & Guayule Agency, Inc.	6,500	
Ed. Maurer	25,000	
Various	7,000	38,500
MAY 25.—By the *Philadelphia*=Southampton:		
Various		45,000
MAY 26.—By the *Auchencrag*=Lisbon:		
Various		7,500
MAY 27.—By the *Potsdam*=Amsterdam:		
Robinson & Co.	20,000	
Various	5,000	25,000
MAY 28.—By the *Victorian*=Liverpool:		
Earle Bros.	2,200	
Various	50,000	52,200
MAY 29.—By the *Graf Waldersee*=Hamburg:		
Rubber & Guayule Agency, Inc.	7,000	
Ed. Maurer	11,200	
Various	22,700	40,900
JUNE 1.—By the *Caroline*=Havre:		
Various		11,200

JUNE 1.—By the *Kaiserin Auguste Victoria*=Hamburg:

Henderson & Korn	3,000	
Various	15,000	18,000

JUNE 2.—By the *Kroonland*=Antwerp:

Rubber & Guayule Agency, Inc.	1,500	
Rubber Trading Co.	3,000	
Various	9,500	14,000

JUNE 4.—By the *Chicago*=Havre:

Various		30,000

JUNE 4.—By the *St. Paul*=Southampton:

Various		5,000

JUNE 5.—By the *Pretoria*=Hamburg:

Ed. Maurer	8,270	
Rumsey & Greutert Co., Inc.	8,430	16,700

JUNE 6.—By the *Adriatic*=Liverpool:

Earle Bros.	2,200	
Johnstone, Whitworth & Co.	5,000	
Various	4,500	11,700

JUNE 9.—By the *Finland*=Antwerp:

Arnold & Zeiss	13,500	
Various	15,000	28,500

JUNE 9.—By the *Noordam*=Amsterdam:

Various		9,500

JUNE 10.—By the *Oceanic*=Southampton:

Various		4,000

JUNE 10.—By the *President Grant*=Hamburg:

Meyer & Brown	8,500	
Rubber & Guayule Agency, Inc.	11,000	19,500

JUNE 12.—By the *Mauretania*=Liverpool:

General Rubber Co.		11,200

JUNE 13.—By the *Cedric*=Liverpool:

W. R. Grace & Co.		2,200

JUNE 15.—By the *Rochambeau*=Havre:

Various		15,000

JUNE 18.—By the *Pennsylvania*=Hamburg:

Ed. Maurer	14,141	
Rubber & Guayule Agency, Inc.	3,000	
Rumsey & Greutert Co., Inc.	2,359	19,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—MAY, 1914.

Imports:	Pounds.	Value.
India rubber	15,938,993	$8,325,628
Balata	26,610	13,766
Gutta percha	233,632	43,170
Gutta jelutong (Pontianak)	2,280,037	97,014
Total	18,479,272	$8,479,578
Exports:		
India rubber	17,331	$7,543
Balata	17,956	10,740
Rubber scrap, imported	1,403,328	97,867
Rubber scrap, exported	381,054	45,508
Reclaimed rubber, exported	169,512	26,878

BOSTON ARRIVALS.

IMPORTS IN MAY, 1914.

	Pounds.	Value.
Gutta jelutong	774,081	$49,381
Gutta percha	60,288	7,240
India rubber	281,143	138,646

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NEW JERSEY STATISTICS OF MANUFACTURES FOR 1912.

IN the compilation of New Jersey manufacturing statistics recently issued the results are presented for the calendar year 1912 in comparison with those of the preceding annual period. The principal features of a general character are shown as follows:

TOTALS FOR NEW JERSEY.

	1911.	1912.
Number of establishments	2,475	2,556
Capital invested	$848,600,943	$919,137,610
Increase of capital in 1912	.....	$70,536,667
Percentage of increase	.....	8.3
Consumption of material	$565,946,362	$648,411,083
Value of goods made (89 industries)	$940,760,552	$1,051,402,715
Increased percentage of product	.....	11.8
Proportion of business done to capacity, per cent	73.03	74.10

In this result, which has brought New Jersey over the billion dollar mark of production, the rubber industry has a prominent position, as may be seen by the following figures:

NEW JERSEY RUBBER INDUSTRY.

	1911.	1912.
Number of establishments	53	55
Capital invested	$30,140,119	$30,814,994
Increase of capital in 1912	.....	$674,875
Percentage of increase	.....	2.2
Consumption of material	$23,657,966	$24,864,760
Value of goods made (hard and soft)	$36,057,242	$38,527,590
Increased percentage of product	.....	6.9
Proportion of business done to capacity, per cent	78.77	77.91
Total horse power	24,541	28,225

It will thus be seen that the proportion of business to capacity in the rubber industry for 1912 was 77.91 per cent., against an average percentage for the whole of New Jersey of 74.10 per cent. The industry occupied eighth place in the table of proportion between business done and capacity.

That employment has remained at about the same level throughout the year is illustrated by the number of hands employed in the rubber industry of New Jersey, which varied between 8,321 and 9,393. The total amount paid in wages for 1912 was $4,859,100, representing average yearly earnings for employes of $547.75.

This report is considerably fuller than any of its predecessors, and gives a good deal of additional information of interest, especially to manufacturers. In Part III there is an industrial chronology of New Jersey, covering the year ending September 30, 1913. This includes changes in hours and in wages, accidents, strikes and lock-outs, and also reports of new factories, improvements in existing works, and any fires that occurred in the different manufacturing plants. Among the improvements and additions to existing mills might be mentioned constructive work amounting to $18,000, done by the W. A. Clark Wire Co., and improvements amounting to $20,000 at the plant of the Woven Steel Hose & Wire Co., Trenton. The rubber company that suffered most from fire was the Harmer Rubber Reclaiming Works, of East Millstone, where the damage amounted to $65,000.

According to a late report, rubber cultivation at Samoa is being slowly but steadily developed. The principal companies engaged in the industry are four English organizations, with an aggregate capital equaling $900,000, and eight German ones with a total capital representing about $1,750,000. The trees are in general too young to give a large yield.